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$3.00 with Directory

TEXTILE WORLD RECORD

A JOURNAL FOR MANUFACTURERS AND ALL OTHERS INTERESTED IN THE PROCESSES AND PRODUCTS OF TEXTILE MANUFACTURING

LORD & NAGLE COMPANY BOSTON MASS.

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The TEXTILE-FINISHING MACHINERY CO.

Howard Building, Providence, R. I.

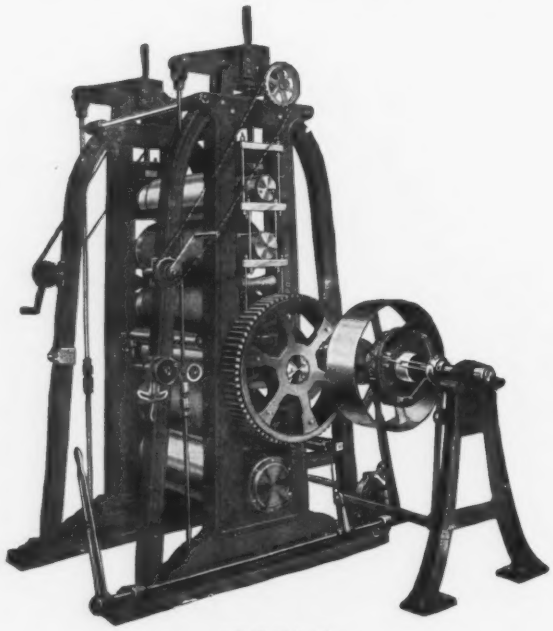
BUILDERS OF

Singeing, Bleaching, Mercerizing, Dyeing, Drying, Printing and Finishing Machinery

FOR

TEXTILE FABRICS AND WARPS

Plans and Estimates for Complete Plants



6 Roll Calender

ROLLER, CHASING, HYDRAULIC, EMBOSSING AND FRICTION CALENDERS AND MANGLES

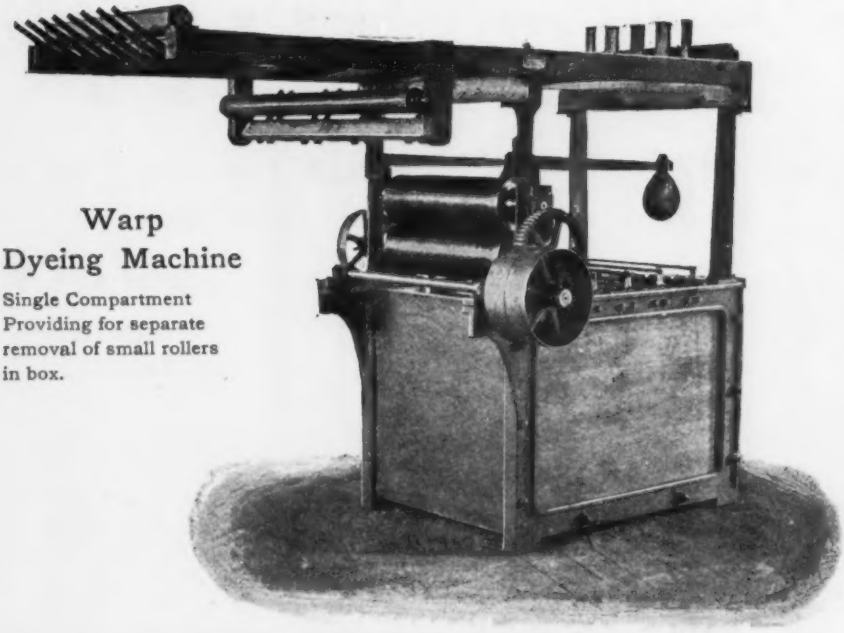
Cotton, Paper, Husk, Iron, Steel, Rubber and Brass Rolls, and our

SPECIAL COMBINATION COTTON-HUSK ROLLS

Bleaching Kiers with Patent Circulators

for

RAW STOCK, YARN, WOVEN AND KNIT GOODS



Warp
Dyeing Machine

Single Compartment
Providing for separate
removal of small rollers
in box.

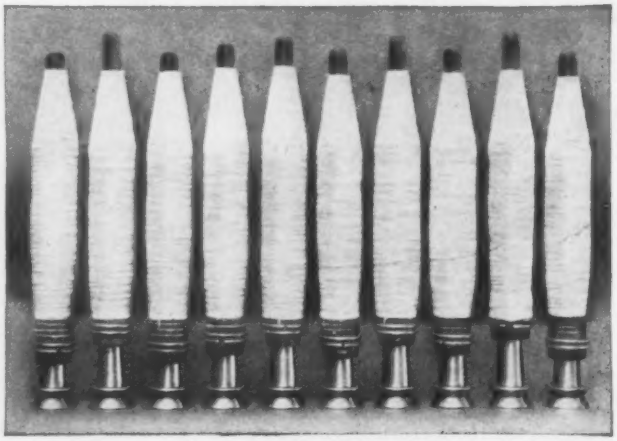
Bleaching,
Dyeing, Drying,
Finishing Machinery

for all textile fabrics.

H. W. BUTTERWORTH & SONS CO.

PHILADELPHIA, PA.

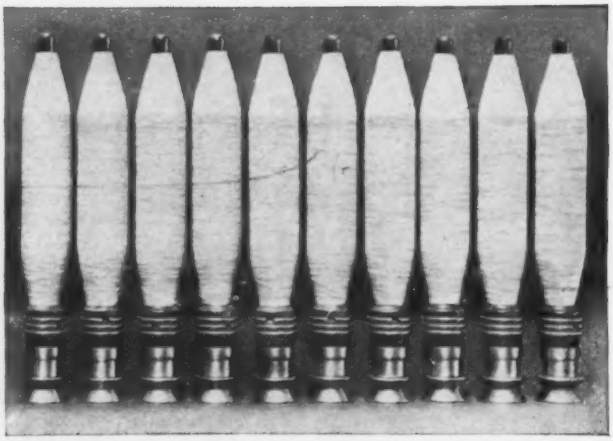
Providence Office, Room 417, Industrial Trust Building.



WHY

have the bobbins on your frames vary in height,

when by using Rabbeth Patent Centrifugal Clutch Spindles they would stand at one level, and carry at least ten per cent. more yarn ?



DRAPER COMPANY

HOPEDALE MASS.

THE BEST

NORTHROP LOOM BOBBINS

AND

SHUTTLES

ARE MADE BY

Northrop Loom Manufacturers

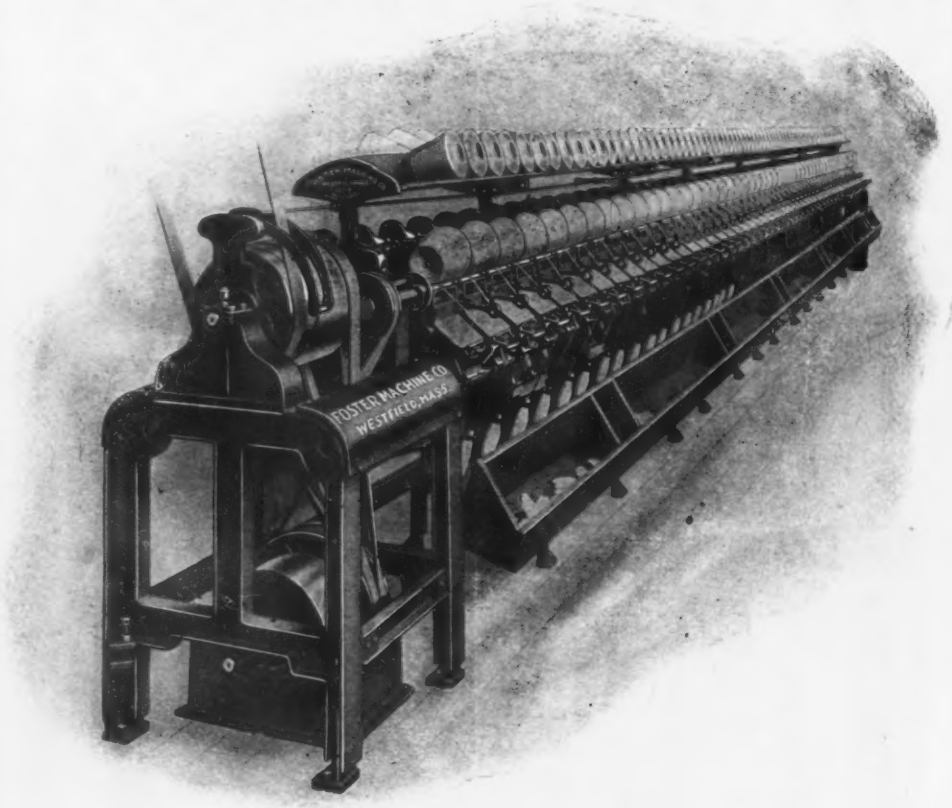
Look for our name on your
Shuttles and Bobbins

DRAPER COMPANY

Hopedale Mass.

J. D. CLOUDMAN, Southern Agent, 40 So. Forsyth St., Atlanta, Ga.

The Foster Cone Winder



The cone package has attained its present favor through the extension of the use of the Foster Cone Winder.

Foster finishing has eliminated cobwebbed cones, ribbon wind chafing, loose ends and guide rubbed cones.

75 per cent of all the knitting yarns produced in the United States are wound on this machine.

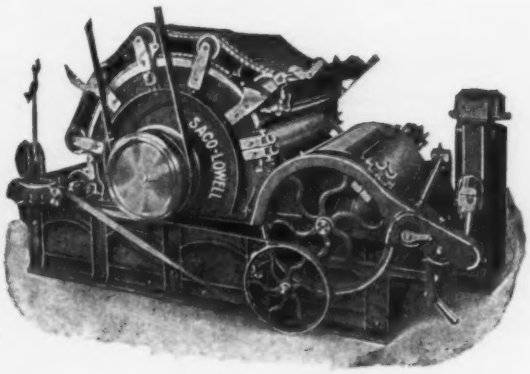
Foster Machine Company

Westfield, Mass.

John Hill, *Southern Agent,* 3rd National Bank Building, Atlanta, Ga.

Saco-Lowell Shops

TEXTILE MACHINERY



Shops—
Lowell, Mass.
Biddeford, Maine
Newton Upper Falls, Mass.

Executive Offices—
77 Franklin Street
Boston, Mass.

Southern Agent, ROGERS W. DAVIS,
Charlotte, N. C.

COMPLETE COTTON MILL EQUIPMENT
Including:
Pickers
Cards
Drawing
Evener Drawing
Roving
Spinning
Twisters
Slashers
Spoolers
Reels
Winders
Warpers
Looms

WASTE RECLAIMING MACHINERY

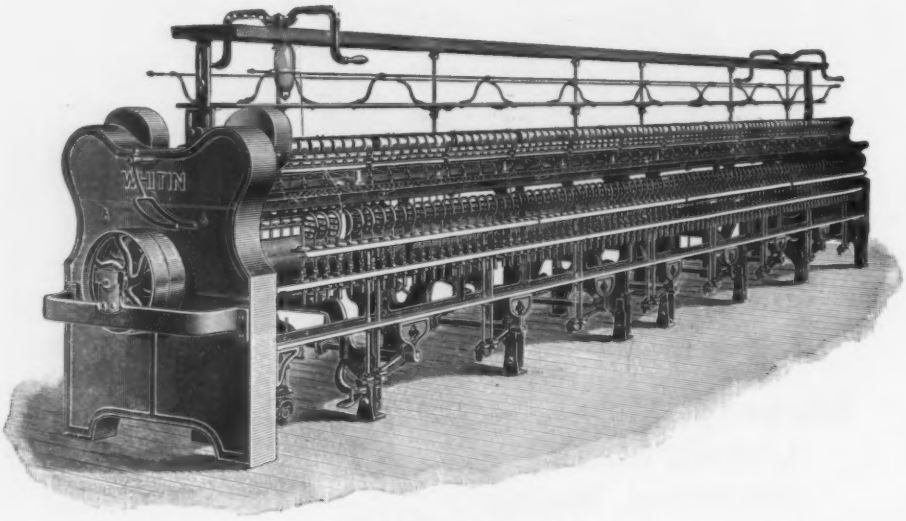
WORSTED MACHINERY
Including:
Revolving Creels,
Gill Boxes
Drawing Frames,
Reducing and Roving Frames,
Cap Ring and Flyer Spinning and Twisting Frames
Jack Spoolers

The Whitin Machine Works

Whitinsville, Mass.

BUILDERS OF

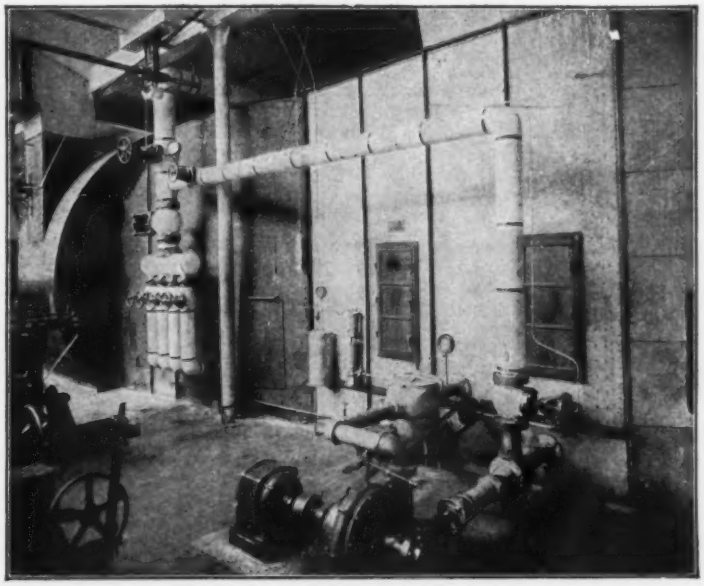
Cotton Mill Machinery



Ring Spinning Frame

CARDS
COMBERS
DRAWING FRAMES
ROVING FRAMES
SPINNING FRAMES
SPOOLERS
TWISTERS
REELS
LONG CHAIN QUILLERS
LOOMS AND DOBBIES

Southern Agent: STUART W. CRAMER, Charlotte, N. C.



"CARRIER EQUIPPED"

Conveys a world of meaning. The manufacturer who can so speak of his mill is at once stamped as the progressive-aggressive type. The class of American textile manufacturer which is here to stay. His known ability to produce a maximum output every working day in the year at a minimum cost of production is an assurance of permanency under all conditions.

See Our Exhibit——————Textile Exhibition

Carrier Air Conditioning Co.

Of America

No. 39 Cortlandt Street, New York City

NEW ENGLAND
E. T. Lyle, 176 Federal St.
Boston, Mass.

CHICAGO
Ft. Dearborn Bldg.
Clark and Monroe Sts.

PHILADELPHIA
734 Real Estate Trust Bldg.

BUFFALO, 490 Broadway

LEIGH & BUTLER

SUCCESSORS TO

EVAN ARTHUR LEIGH

232 Summer Street opposite the South Station), Boston, Mass.

SOLE AGENTS

IN THE UNITED STATES AND CANADA FOR

Platt Bros. & Co., Ltd.

BY FAR THE LARGEST MAKERS IN THE WORLD OF

Cotton, Woolen & Worsted Machinery

Platt's Patent Opening and Picking Machinery.
Platt's Cotton Comber—will comb from 7-8" stock to Sea Islands.
Platt's Special Machinery for Making Cotton Wastes into Yarns.
Platt's Special Machinery for Making French Worsted Yarns.
Platt's Woolen and Worsted Carding Engines, Special Designs.
Platt's Cotton, Cotton Waste, Woolen and Worsted Mules.

MATHER & PLATT, LTD.

Dyeing and Finishing Machinery

Archbutt-Deeley System for purifying and softening water.

JOSEPH SYKES BROS. Card Clothing for Cotton.
JAMES CRITCHLEY & SONS. Card Clothing for Woolen and Worsted.
WILSON BROS. BOBBIN CO. Bobbins, Shuttles, Etc.
THOMAS B. HAIGH. Double Loop Bands, Spinning Tape, Etc.
DRONSFIELD BROTHERS. Grinding Machinery and Emery Filleting.
HARDING'S Fallers, Pins and Circles.
The Best French and English Combing and Rubbing Aprons.
Card Flats reclothed and Lickers-in rewound.

UNIVERSAL WINDING MACHINES

PARTS ALL INTERCHANGEABLE

TRADE MARK REG. U.S. PAT. OFF.

UNIVERSAL NUTAPER CONES

Are the best supply for a knitting machine for the following reasons:

1. The yarn retains its original elasticity and twist because:

(a) By the "Universal System" it is wound with a light tension and not subjected to the rubbing pressure of a friction drum.

(b) The guide delivers the yarn at the cone itself and does not draw it on with a rolling motion from a greater distance than the length of the fibre.

2. Nutaper cones can be ordered with any desired degree of "openness;" the correct "spacing" once being determined remains absolutely uniform for any number of cones and for all the layers of any one cone.

3. All the yarn will run off "clean" because—

(a) The taper (or pitch) is correct, having been determined by exhaustive tests on a great variety of knitting machines.

(b) The paper cone tube has the same acute taper (or pitch) as the outer surface of a full cone and there is no "drawing in" or "bunching" of the first few coils.

(c) No. 50 "Universal" machines do not make "Cobwebs" or "overruns."

UNIVERSAL WINDING COMPANY

PATENTEES AND SOLE MANUFACTURERS

BOSTON

Fill Your Factory With Sunshine

Buy it by the barrel and let it penetrate into every corner of your plant. It will give you 19 to 36 per cent more light than you had before. It will lengthen your daylight day, cut down your lighting bills, improve sanitary conditions. Paint your ceilings and walls with

RICE'S MILL WHITE

The only oil paint (without varnish) giving a glossy, tile-like finish

It will fill your factory with sunshine. Its glossy surface will not absorb light or collect dirt, germs and odors like a flat paint. It can be washed like tile.

Rice's Mill White will not scale and require frequent renewals like a cold-water paint. It will not "alligator" and crack under the jar of machinery like a varnish paint. It flows easily under a 4" brush; two coats equal three of lead and oil. *It stays white longer than any other gloss paint.*

The Original Mill White

Rice's Mill White made a trade name of the words, "Mill White." None of its imitations has its elastic, permanent qualities. No other paint manufacturer can use the Rice process. Rice's Mill White for ten years has proved itself unequalled for illuminating power, sanitary qualities and low ultimate cost.

Write for Booklet and Sample Board

Ask for a copy of our booklet, "More Light." *Write today.*

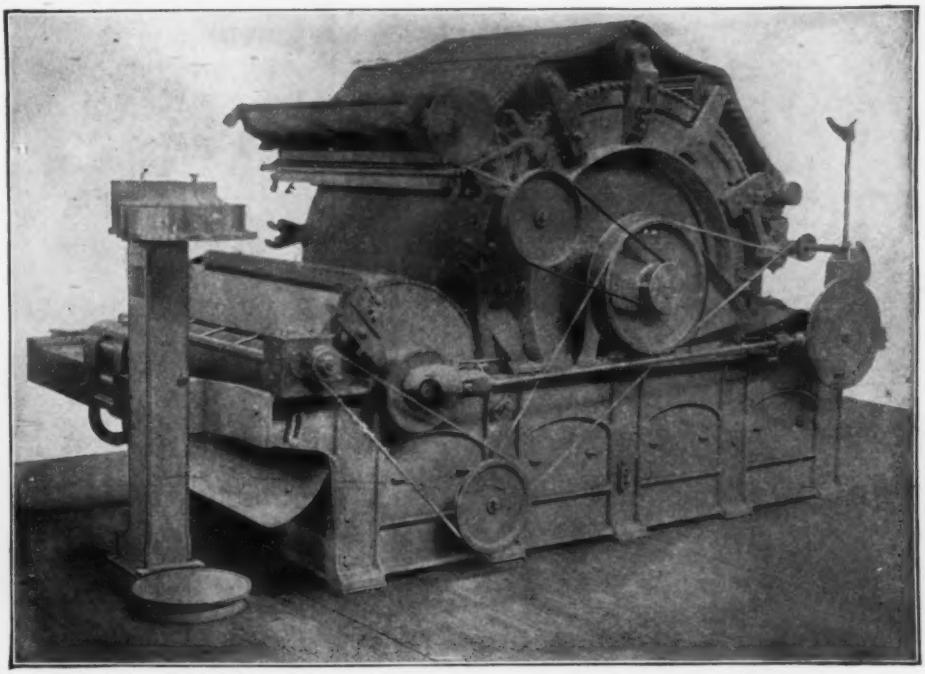
U. S. Gutta Percha Paint Company

No. 20 Dudley St., Providence, R. I.

MASON MACHINE WORKS

Taunton, Mass. **Greenville, S. C.**

Builders of
Revolving Flat Cards, Drawing Frames,
Spinning Frames, Looms, Dobbies, Etc.



Superior Loom Cranks for Repairs

Cramer System
of
Air Conditioning

Cramer "High Duty" Air Conditioner

Cramer Automatic Regulator

FACTS

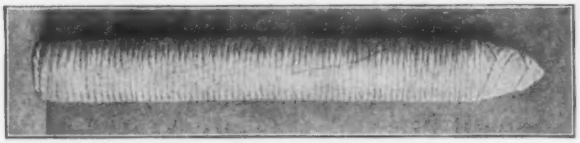
In several large mills equipped with humidifiers of other makes, we have entirely reorganized their system, installing our "High Duty" equipment with automatic humidity and temperature control and the average improvement during the succeeding twelve months test is:

A—Seconds reduced over 50%.
B—Production uniform day after day (No big jumps.)
C—Actual waste account halved.
D—Large saving in "invisible waste."

What Would Similar Results Be Worth To You?

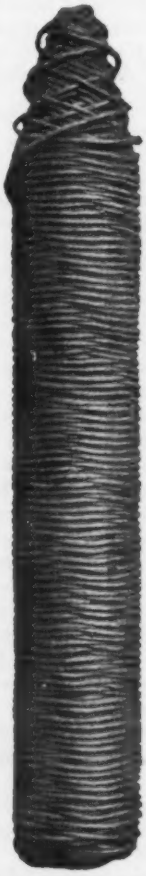
STUART W. CRAMER

50 Church St. New York — **Charlotte, N. C.** — Tremont Bldg. Boston, Mass.

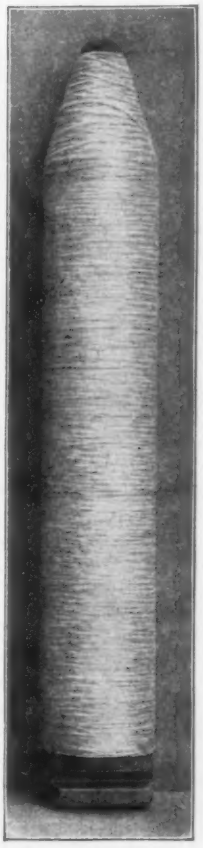


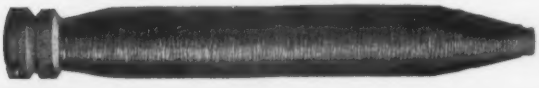
No. 2

No. 1 and No. 2—Cops to weave from inside seven-eighths to three inches diameter and up to seventeen inches long. Suitable for various kinds of coarse goods such as grass matting, cotton bagging, cocoa matting, all kinds of carpets, felts, chinchilla, linen, jute, flax, asbestos, hose and narrow fabrics such as wicks, belting, webbing, surcingles, halters, etc.



No. 3 and No. 4 Shuttle Bobbins from seven-eighths to two inches in diameter and any length up to twelve inches. Suitable for all kinds of duck, upholsteries, tapestries, asbestos, ratana or any kind of fancy yarns for automatic or other looms.





No. 1 No. 4 No. 3

OSWALD LEVER CO., Inc.

Lehigh Avenue and Front Street, Philadelphia, Pa.

Builders of Textile Machinery

WINDERS ESPECIALLY

Parks' Piping Parables

The Parko System of Hot Water Heating for Factories

To evolve, man must continually change his mind. He must plan ahead, but he can't afford to make his plans in cast iron—nor yet in jelly.

Sort of a cross between the two.

Time was when in viewing mill "heat unit" problems, we invariably bethought ourselves of steam. Hot water; its use as a mill warming medium, never entered our minds.

We couldn't see how the energy of exhaust steam, transformed into the energy of hot water, was of itself economic.

We argued that a transition of energy from one form to another meant loss.

Otherwise perpetual motion would be rampant.

Still as open-minded engineers, we were in duty bound, in justice to ourselves—in justice to you, to chase down all the clues there were.

And this chasing down of clues led us to what I want to tell you about, for out of it evolved the Parko System of Hot Water Heating for Mills and Factories.

We had changed our mind!

These are some of the reasons.

Mechanically, hot water is much simpler to circulate than steam. Being circulated by pumps, it goes up hill, down dale, anywhere the pipes lead. And being so circulated, the main pipes are smaller.

Notwithstanding expensive "main works" pumps and heaters, it is, in many cases, actually cheaper to install than steam.

Because of these heaters, it is possible to utilize sources of heat, like drips, that in a steam system would not be available as such.

However, in the ordinary plant, these items would not effect the saving that is usually obtained by hot water heating, and we had to find some other answer.

More clues to run down.

Bear in mind, I said the Parko System of Hot Water Heating had to have a central place for collecting and disseminating (I like that word) all those recreant heat units. A central station of this sort presupposes a location in or near the power plant where the operating engineer gives it the benefit of his watchful eye.

Which is just where the economy comes in.

Instead of having everybody shutting off or turning on steam coils—and usually they are turned on and left on—the engineer simply notes the outside temperature, and then by means of a chart which we supply, governs the temperature of the whole plant accordingly.

Could anything be more scientific than that? And wouldn't Taylor and Emerson and Gantt say this had all the principles of the new efficiency platform?

This regulation may be done in two ways—by regulating the temperature of the water, or the speed of the pumps.

A Parko Hot Water Heating System entails, however, a lot of preliminary engineering work.

The coils in each room must be figured to a nicety, and the main pipes apportioned accordingly, so that the system when completed will regulate, and when I say regulate I mean real regulation, as a single unit—and not as several.

No place for the rule o' thumb artist.

But you ask, why couldn't all this be done with steam.

Here's why.

You could install a central plant. You could regulate—you could throttle down. But unfortunately, when you throttle you don't know which path the steam will take. And knowing today—you don't know tomorrow.

Hence running around, shutting off and turning on coils locally.

Now I'm not knocking steam heating. Simply showing you the difference. On many occasions we would recommend steam. In fact, hot water is not altogether common. Its use is best adapted in the rather large factory, particularly the rambling kind.

We like this work because usually the man who suspects himself of needing it realizes a rather bad condition. It presupposes a chance to do him a whole lot of good and gives us a chance at the very class of work that we are best fitted to do.

In a later issue, we shall tell how the application of this system paid for itself in a very short time.

In the meantime, however, if you suspect yourself of having a problem, we can get a better line on it by seeing it in actual winter conditions.

The G. M. Parks Company

Fitchburg, Massachusetts

The New Tariff Should Cause You to Answer these Questions—Not to Us—But to Yourself

1. In the cotton I bought there was 7½% moisture. Was it in the goods I sold?

2. I paid 12 to 20 cents a pound for that water. Did I throw it away, or did I hold it and sell the same water at finished goods prices?

3. Parks tells me that to hold this moisture my psychrometer readings should never show a greater difference than 10° between the wet and dry bulb—from picker room to packing case. Am I holding it there?

4. Parks says my labor costs would be reduced if I used compressed air for cleaning. Have I ever investigated?

You should answer these questions—NOW—before you have to. A combination that's hard to beat is on your trail:—hungry manufacturers abroad. Turbofied competitors at home—and the answer has got to come.

The Turbo man has the solution for you. He'll bring it with him if you invite him to call. Just a line saying when you'll see him, and he'll be there to tell you about—

TURBO TRADE MARK HUMIDIFIER

The Turbo Humidifier

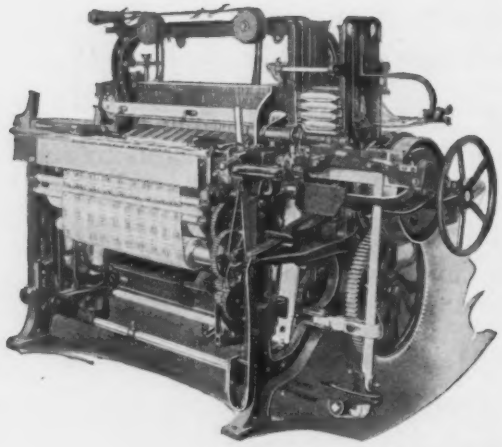
(The Pure Water Humidifer With the Guarantee)

The G. M. Parks Company

Fitchburg, Mass.

Southern Office, 200 Commercial Bank Building
J. S. Cothran, Mgr.

Crompton & Knowles Loom Works



Automatic Gingham Looms

One of our latest productions for weaving goods of two or more colors in the filling. Like every loom we build, it has the advantage of a successful mill test.

WORCESTER, MASS.

Providence, R. I. **Philadelphia, Pa.**

Southern representative, ALEXANDER & GARSED, Charlotte, N. C.

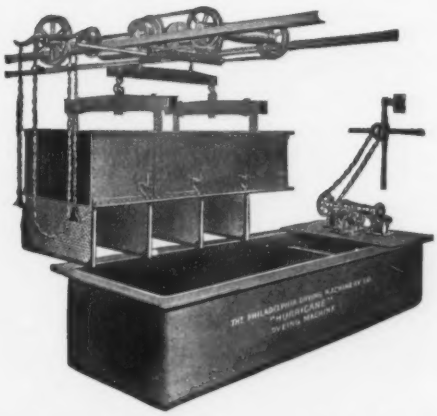
Dyeing Machinery

For

Hosiery,

Skein Yarn,

Slubbing, etc.



BETTER

Dyeing

AT

Less Expense

The BEST and Most Economical Dyeing Machine

Give us an Opportunity to Prove our claims

"Hurricane" Circulating Dyeing Machines are built in various sizes and types

Automatic Dryer for Yarn, Slubbing, Etc.

COMPLETE EQUIPMENTS FOR

DYEING

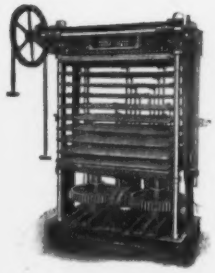
SCOURING

BLEACHING

CARBONIZING

FIRE-PROOF DRYERS

Steel Construction,—Insulated with Asbestos



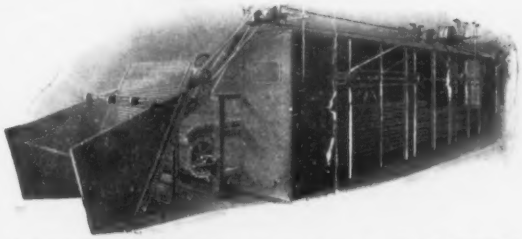
Power Screw and Hydraulic PRESSES

FANS

MOTOR

AND

BELT-DRIVEN



AUTOMATIC STOCK DRYER

(With Sectional-Continuous Conveyor)

For Cotton, Wool, Hair, Rags, Etc.

THE PHILADELPHIA DRYING MACHINERY CO.

Main Office and Works:
6721 Germantown Ave., Philadelphia, Pa.

Boston Office:
53 State Street

Calico and Vigoureux Printing

Recent discoveries in the production of

Gum Tragasol

have given a product of exceptional merit for use as an economical thickening agent for use in printing.

Gives greater penetration, brighter colors and clearer lines.

JOHN P. MARSTON
247 ATLANTIC AVENUE
BOSTON, MASS.

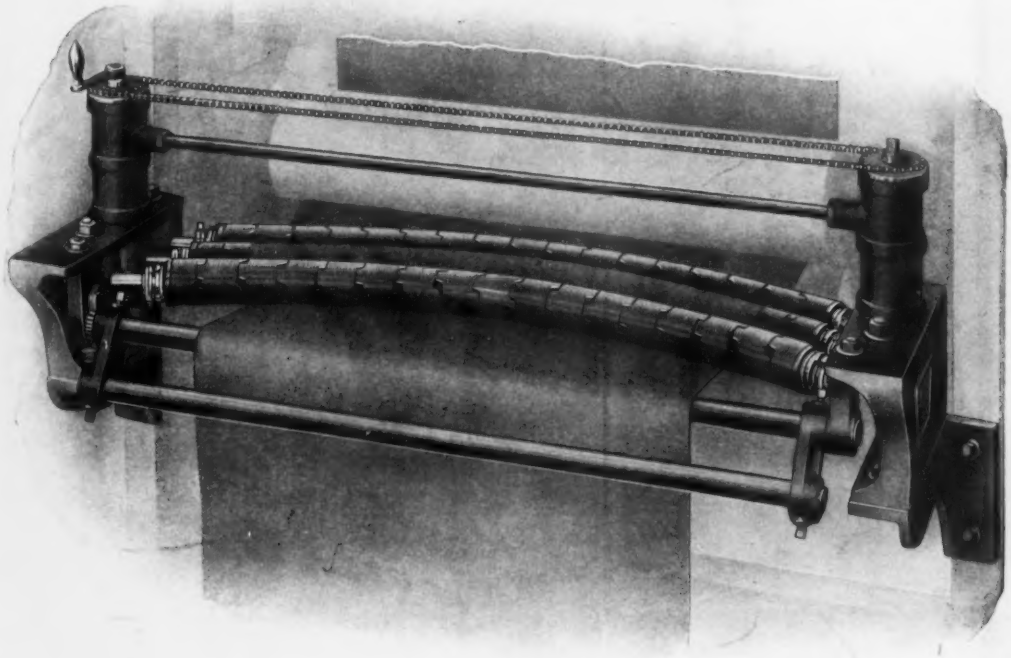
THOMAS LEYLAND & COMPANY

F. T. Walsh, Manager

60 India Street, Boston, Mass. WORKS AT READVILLE, MASS.

Sole Manufacturers of THE WILLIAM MYCOCK

Improved Regulating Cloth Expander

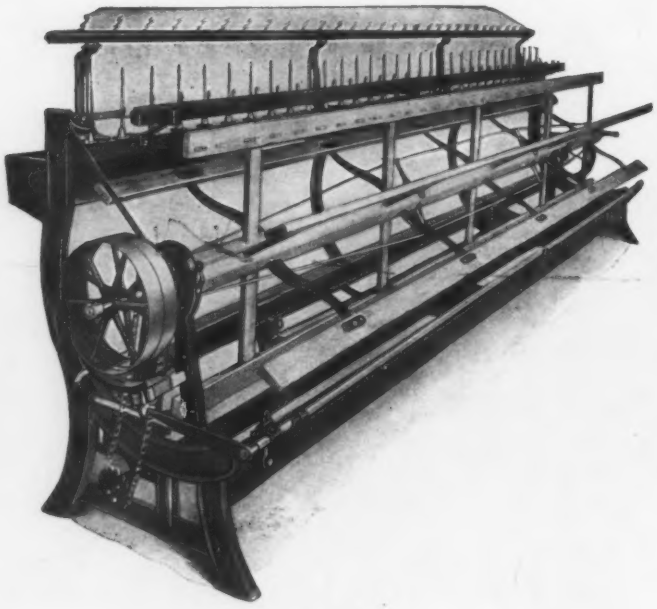


Expander attached to Calendar showing Regulating Motion and Adjustable Tension Bars

This Expander and its improved features are fully protected by basic United States patents, under which the builders will maintain their patent rights against any who may violate such rights by building, selling or using machines of this character.

Scutchers, Sewing Machines, Open Bleaching Machines, Blanket Washers for Calico Printers, Guides, Etc.

Cotton Machinery by Specialists



Reel

Easton & Burnham Machine Co.

Southern Representative:
J. H. MAYES, Independence Bldg.
Charlotte, N. C.

Northern Representative:
WM. V. THRELFALL, Marshall Bldg.
Boston, Mass.

Cotton Machinery by Specialists

Pickers and Revolving Flat Cards

POTTER & JOHNSTON MACHINE CO.

Pawtucket, R. I.

Drawing and Roving Machinery

WOONSOCKET MACHINE & PRESS CO.

Woonsocket, R. I.

Ring Spinning and Twisting Frames

FALES & JENKS MACHINE CO.

Pawtucket, R. I.

Spoolers, Winders and Reels

EASTON & BURNHAM MACHINE CO.

Pawtucket, R. I.

Warpers and Beamers

T. C. ENTWISTLE CO.

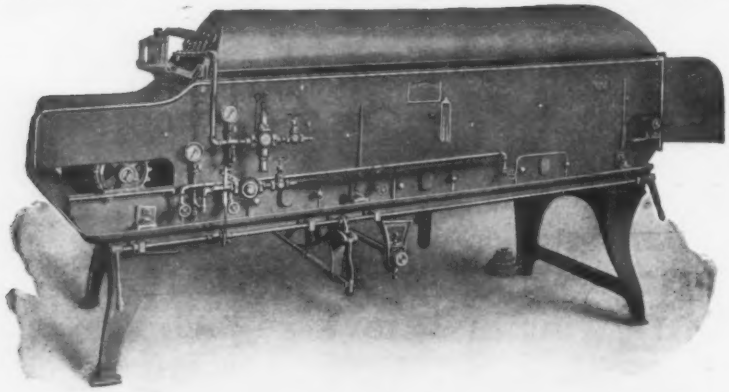
Lowell, Mass.

Southern Representative:
J. H. MAYES, Independence Bldg.
Charlotte, N. C.

Northern Representative:
WM. V. THRELFALL, Marshall Bldg.
Boston, Mass.

The Yarn Conditioning Machine

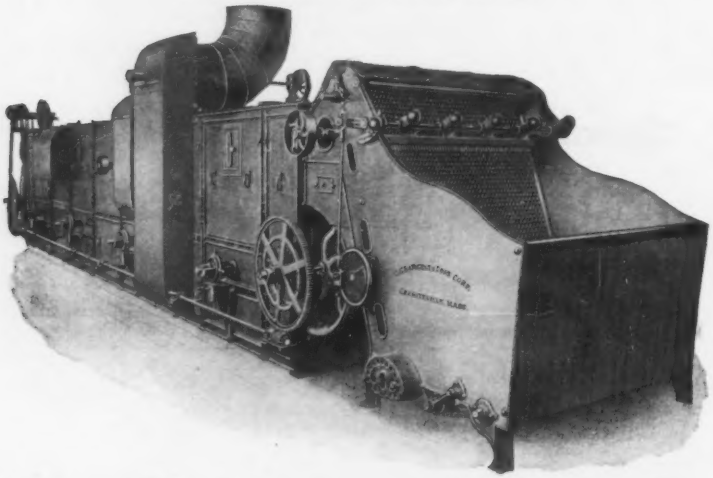
Sets the twist in your filling and overcomes kinky filling difficulties. It conditions without injuring the bobbins



The Sargent Drying Machines

Metal Construction
Asbestos Insulation

Scientifically designed for greatest economy in drying Cotton, Wool, Hair.



Wool Washers, Wool Dusters and Openers, Burr Pickers
Complete Carbonizing Plants
Automatic Feeds for Cotton and Wool

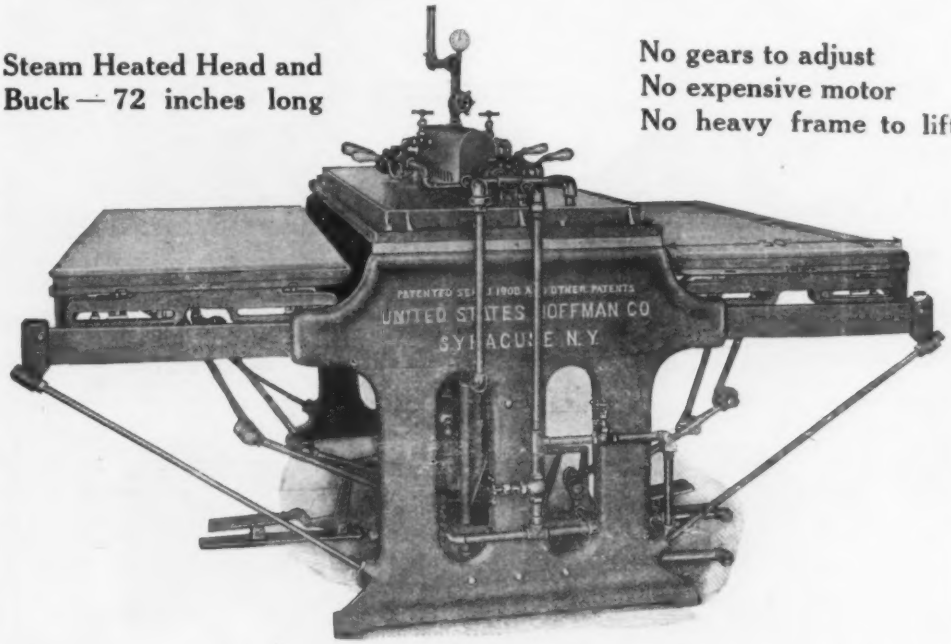
C. G. Sargent's Sons Corp., Graniteville, Mass.

Manufacturers who are using the "HOFF-MAN" "FFF" are heralding its advantages.

You ought to know about this equipment—it would be for your best interests.

Steam Heated Head and Buck — 72 inches long

No gears to adjust
No expensive motor
No heavy frame to lift



"Hoff-man" "FFF" Underwear Press

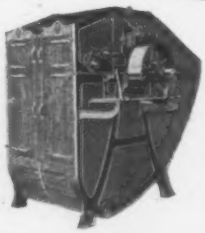
The cost of your pressing department minimized
The finish of your product characterized as

SUPERIOR

United States Hoffman Co.

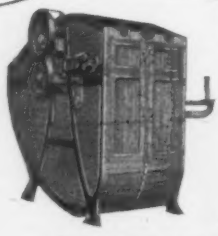
SYRACUSE, N. Y.

THE CURIOUS INVESTIGATE



The Hunter

NO. 10
FULLING
MILL



DRIVING SIDE

GEAR DRIVE

CLOTH WASHERS

PEICE DYE
KETTLES

SOAPING
MACHINES

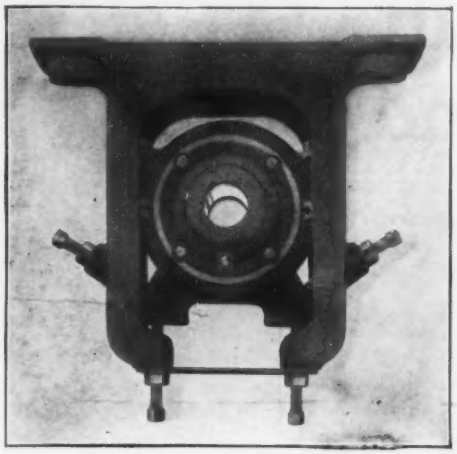
BELT DRIVE

ROPE DRIVE

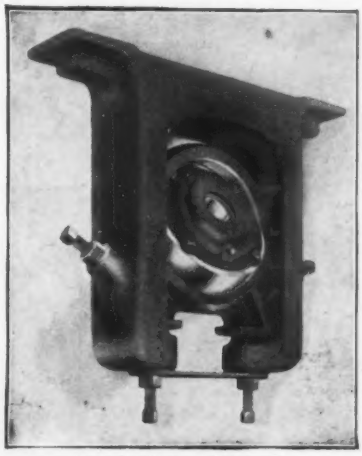
JAMES HUNTER MACHINE CO.

NORTH ADAMS, MASS., U. S. A.

The New Hanger with the Can't-Be-Cramped Ball Bearing Box

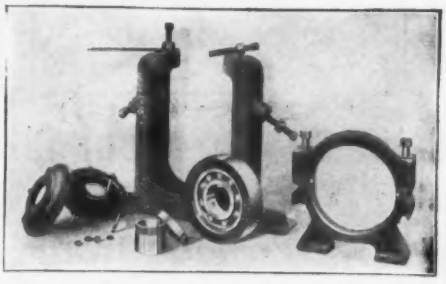


Note Position of Adjusting Set Screws



Note the Universal Swivel

Just Another Step in Advance



The Hanger of Greatest Flexibility

The New Hess-Bright Ball Bearing Hanger

was designed for exclusive use with Hess-Bright Ball Bearings which are world famous for durability, anti-friction quality and microscopic accuracy. The new hanger is equally superior and free from objectionable features. Here are some of the reasons why:

Distinctive Feature No. 1

The adjusting set screws are so arranged that no matter how tight you make them you cannot distort the ball-bearing box. You cannot pinch the bearing in the least. Thus unnatural friction and waste of power are avoided.

Distinctive Feature No. 2

The universal swivel permits the bearing to adjust itself at all times to any possible change of pull or weight on the shaft in any direction. This obviates binding, and allows the maximum carrying capacity.

You are offered, therefore, a hanger of hollow box section construction no heavier than others of equal bearing capacity but:

Rigid, Flexible, Self-aligning, Anti-friction and Non-binding

Consult our Engineering Department and get Hess-Bright Ball Bearing Hangers in on trial. We take the risk. Ask now for further details.

The Hess-Bright Manufacturing Company

Pioneers in the introduction of Annular Ball Bearings

Front Street and Erie Avenue, - Philadelphia, Pa.

PHILADELPHIA, 666 North Broad Street NEW YORK, 1974 Broadway CHICAGO, 1809 Michigan Avenue

→ See next issue for advertisement of Hess-Bright Ball Bearings applied to textile machinery ←

LANE

Canvas Mill Trucks
Baskets and Boxes

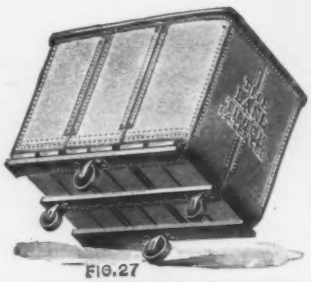


FIG. 27
The Lane Truck.
Mounted on Stationary Frame, Thread-guard Casters, as shown, or on Swivel Casters, if desired.

Altho' Withstanding the *Roughest Handling*

ARE THEMSELVES

Absolutely *Without Roughness.*

Thus They Reduce:

Cost, Waste, Damage

And They Are Light in Weight, Too

A STYLE FOR EVERY USE

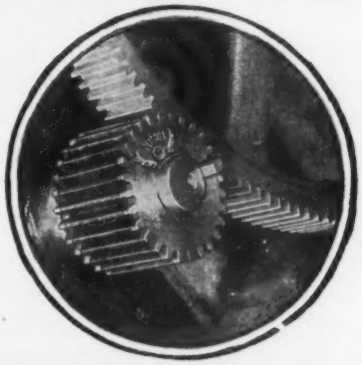
W. T. LANE & BRO., Mfrs.

POUGHKEEPSIE, N. Y.

Metal-to-rawhide gear contact

Yes, they *LOOK* about alike while they're running, but they don't *SOUND* alike

Metal-to-metal gear contact



The QUIET drive looks like this when it's not running. The pinion, you see, is NEW PROCESS

Workmen *can* put up with the annoyance produced by metal impinging against metal at high speed, but with minds and ears protected from external disturbances they can do *more work*.

Every high speed metal gear drive should include a New Process Pinion to do away with the metallic noises, to prevent destructive vibration and to prolong life of the intermeshing gear teeth.

New Process Pinions accomplish these results perfectly and have established a standard for non-metallic gears as to strength, durability, noiselessness and efficiency. They can be most profitably used as a standard part of most high speed gear drives.

Ask for our book "Noiseless Gear Driving" and if you want advice on gear problems, our engineers will help you without charge.

NEW PROCESS IS TO ALL OTHER RAWHIDE AS STEEL IS TO IRON

N.P.R.H. **NEW PROCESS GEAR CORPORATION** N.P.R.H.

SYRACUSE, N.Y.

Canadian Agents: Robert Gardner & Son, Ltd., Montreal 85

Starch

THE particular case of your own mill needs careful study to determine what starch is best suited to *your* SIZING and FINISHING problems.

We have reduced the manufacture of starches for textile work to a science by years of factory investigation and laboratory research. We are ready to take up the special case of your mill and point out to you what starches are most adaptable and reliable for your purposes.

Six years of careful investigation of conditions in the cotton mills of the country has taught us the needs of the trade.

Six years' research in the best equipped Starch Laboratory in America has put us in touch with starch chemistry.

Six years of manufacturing, with cotton mill problems in mind, has produced our special Brands of Textile Starches.

We want to send our special starch expert to your mill. We want him to go into the matter of sizing with your boss of slashing—check up your sizing processes—find out whether you are now using the starches that will insure you the most efficient and economical results.

This special starch expert service is absolutely free—send us a sample of the starches you are using. We will give you an exact analysis of them and send our practical man to study your needs. Write a letter now to our Mill Starch Department.

Corn Products Refining Company
NEW YORK

Starch

A. W. BUHLMANN

Textile Engineer

200 Fifth Ave., - New York

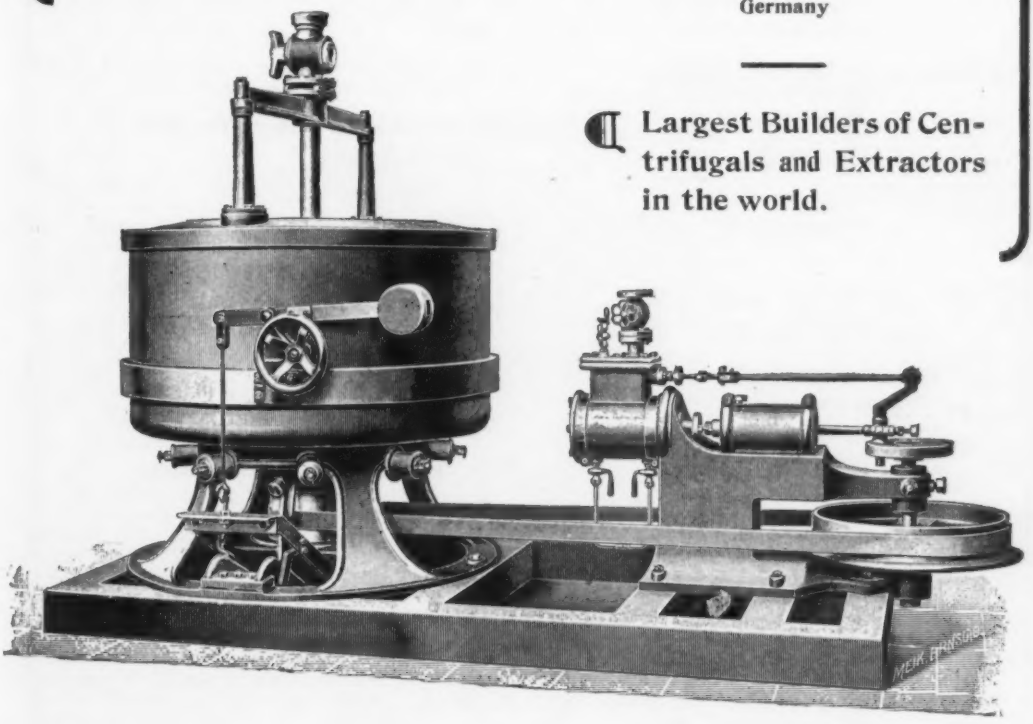
Sole representative in the U. S. A. and Canada for

GEBR. HEINE

VIERSEN

Germany

¶ **Largest Builders of Centrifugals and Extractors in the world.**



¶ **HEINE Centrifugals have been the "Standard" for 26 years.**

¶ **The Heine firm does not build any other machinery, they are specialists in centrifugals and extractors.**

¶ **If you are interested in such machinery for any purpose, at any time, it will pay you to consult me.**

G&K 1851

Educational Talks on Leather Belting.

Proper Selection of Belting

(Widths, Weight and Quality)

The use of belting constructed to meet each condition of service, ensures low cost of operation and maintenance, as well as the maximum production from machinery.

A belt should be capable of transmitting from 5% to 25% more power than is actually needed; the excess capacity being governed by the type of drive, ranging from 5% for heavy main drives to 25% for machine belts.

Too Wide vs. Too Narrow Belting

Never use belts full width of the pulley face, as a slight misalignment may cause part of the belt to run beyond the edge of the pulley and perhaps against a shifting finger or pulley flange, resulting in loss of power and frequently in a badly damaged belt.

A belt too narrow necessitates high tension to transmit the required power, thus causing excessive journal friction, consequent loss of production, and the early destruction of the belt. Thin, wide belts give the best service working vertically. A thick, narrow, vertical belt will not grip the pulley well.

Single vs. Double Belting Heavy vs. Light

In general, single belts, if heavy enough to carry the load, should be used on small pulleys. A single belt should never be used where the width is more than 1 1/3 times the diameter of the smallest pulley. Where small diameter pulleys and the load would require an unusually wide, single belt, it is advisable to substtiute narrower pulleys and a narrower light double belt.

Double belts of medium or heavy weight should never be used on pulleys less than 12 inches in diameter, and it would be better to adopt 20 inches as the minimum diameter.

Belts too heavy for the load weave back and forth on the pulleys. This is best illustrated by a belt working under intermittent loads, the belt running straight while carrying the maximum or proper load, but showing a tendency to weave when the load is considerably reduced.

Centre Stock vs. Side or Shoulder Stock Belting

Belting made from center stock leather (first quality belting) should be used to carry heavy loads or where the conditions are unusual. For certain light work or underloaded countershaft work, side stock or even shoulder stock belting (second quality) will often meet the requirements satisfactorily.

Do not, however, be deceived by so-called first-quality double belting made with one-ply center stock and one-ply shoulder stock; the two cuts and qualities of leather do not stretch uniformly and a belt so constructed will soon give trouble.

Oak Tanned vs. Spartan Belting

Oak Tanned leather belting is recognized as the best belting for ordinary conditions.

For overloaded drives, where it is not feasible to get greater power by increasing the belt speed or the width of pulleys to enable the use of wider belts, recourse must be had to our Spartan Brand of Belting, remarkable for its pliability and consequently increased pulley grip and its great tensile strength. Where abnormal external conditions exist Spartan Belting should be used as the specially tanned leather and the special cement used in its construction resist the injurious effects of water, heat, steam, oil, gases and acid fumes.

The above suggests only a few of the problems which must be met in installing a drive of maximum efficiency, but it illustrates the importance of carefully considering this question. Our Engineering Department is ready to solve any Transmission problem, investigate or design any drive upon request. If you have certain belts or drives which are a source of annoyance and expense consult us. Authentic engineering advice promptly submitted. ***Subject for next month: "Proper Installation of Belting."***

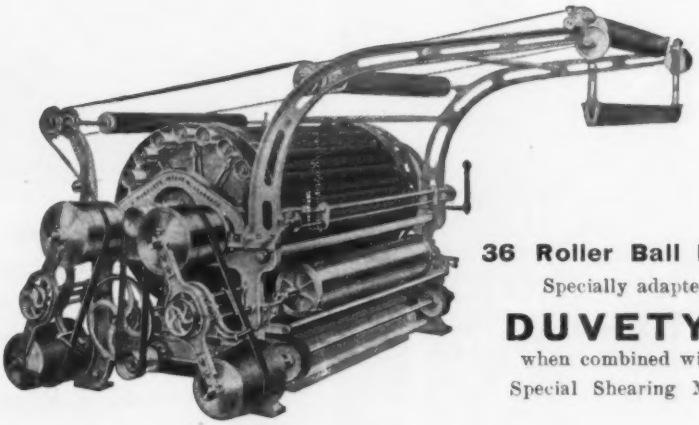
THE GRATON & KNIGHT MFG. CO.

Oak Leather Tanners and Belt Makers

WORCESTER, MASS., U. S. A.

MONFORTS

Largest Napper Builder in the World



36 Roller Ball Bearing
Specially adapted to
DUVETYNS
when combined with our
Special Shearing Machine.

TRY THE NEW TARIFF

ON OUR

Rotary Presses, Paul Klug Dry and Wet Decating, Fulling Machines, Tentering and Drying Machines with Automatic Electric Feeder, Cross Spool and Beam Dyeing. The new process Niederlahnstein Automatic Hank Mercerizing, Card and Napper Clothing, etc.

L. H. A. Schwartz & Co.

40 Central Street **Boston, Mass.**

Direct Importers of China, India and Egyptian Cottons

Light the dark places, dye and slasher rooms, as well as protect your concrete and cement with
Bay State Brick and Cement Coating
It is impervious to moisture and will not flake off when used overhead as an interior coating.
Many mills and industrial plants use it on cement to prevent it from cracking by the action of the elements.
Send at once for a list of textile mills and Booklet Y that tells you where it has been used.
WADSWORTH, HOWLAND & Co., Inc.
Paint and Varnish Makers and Lead Corroders
82-84 WASHINGTON STREET
BOSTON, MASS.

SMITH, DRUM & CO.

"BUILDERS OF THE BEST"

Labor Saving Machinery for Dyeing, Singeing and Finishing

HOSIERY

IN SULPHUR, ANILINE, DEVELOPED BLACKS AND COLORS
POWER SCREW PRESSES and MERCERIZING MACHINES

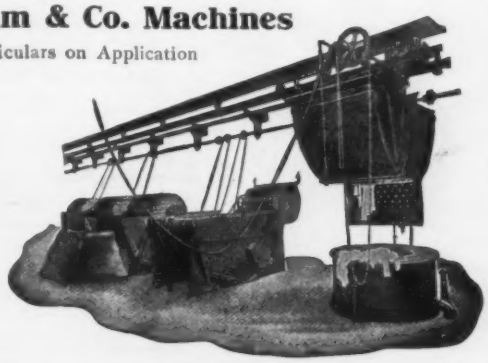
SAVE LABOR and **DYE STUFF** and do **BETTER WORK**
in your dye house by using

Smith, Drum & Co. Machines

Full Particulars on Application

Coral and
Cumberland Streets,
Philadelphia,
Pa.

Southern Agent
H. G. MAYER
Realty Bldg.,
CHARLOTTE, N. C.



LAWSON'S

Hope Foundry, LEEDS, England

BRANCH OF

Fairbairn Lawson Combe Barbour, Ltd.

MAKERS OF MACHINERY FOR

Preparing and Spinning

Flax, Hemp, Tow and Jute

Special Machinery
For the Manufacture of
Twines, Rope Yarns and Binder Twine

Good's Combined Hackling and Spreading Machines.

Long Reach Screw-Gill Drawing Frames. Chain-Gill Drawing Frames with Apron Heads.

Patent High-Speed Horizontal and Automatic Spinning Frames for Manila.

Improved Laying Machines.

Haskell-Dawes Tubing Twisters.

Brownell's Patent Twisting and Laying Machines for Twine.

N. B.—Complete Plans and Estimates for Flax, Tow, Hemp and Jute Mills, Trawl Twine Factories and Steam Ropeworks.

When Selecting Belt Pulleys What Tests Do You Apply?

Note these tests that have proved

"American" Steel Split Pulleys

Patented

The Test of Time
The "American" is the original steel pulley, with sixteen years of continuous and ever increasing success behind it and more to come.

The Test of Service
"American" Pulleys are fully guaranteed. The company is not called upon to replace two pulleys in every thousand that it sells.

The Test of Adaptability
"Americans" are parting pulleys. They may be bushed to fit various sizes of shaft, and are competent to perform either single or double belt service.

The Test of Popularity
"Americans" are probably the most widely used metal pulley in this country. Over two millions have been distributed.

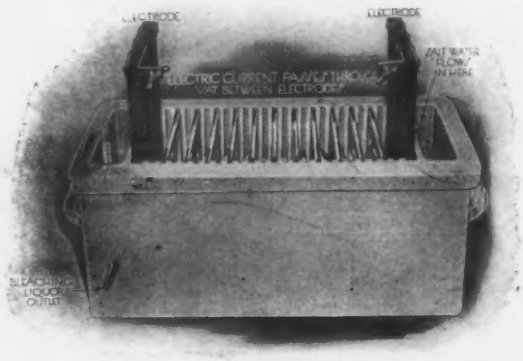
These facts are not accidental, but result from superiority of construction. A postal will bring you "Factors of Energy"—a booklet fully describing "American" pulleys, and containing general information useful to mill men.
It's worth a cent to you.

Perfect in Principle Powerful in Performance

THE AMERICAN PULLEY COMPANY
OFFICE AND WORKS: PHILADELPHIA, PA.

New York, N. Y. Cor. Grand & Greene Sts. | Boston, Mass. 165 Pearl Street | Chicago, Ill. 124 S. Clinton St

Make Your Bleach out of Salt Water.



The cut represents our passage type Electrolyzer producing in 8 hrs. the equivalent of 50 lbs. of chloride of lime, operating under 110 or 220 DC, and nothing is used but salt-water and electricity. The liquid produced is uniform in strength, and goods bleached are stronger and better in feel and color.

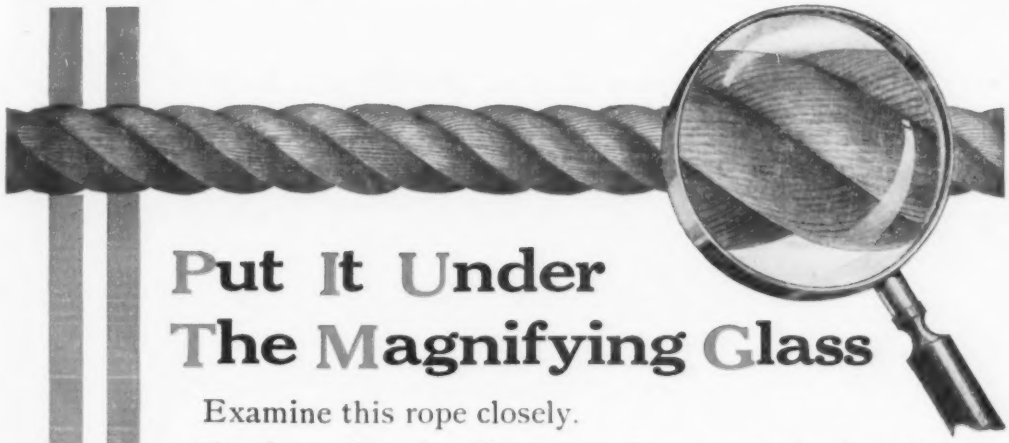
IS NOT AN UNTRIED THING

having many years ago passed the experimental stage. We have sold Electrolyzers to many of the large Knitting Mills, both hosiery and underwear, and so far are not aware of any purchaser not being thoroughly satisfied. There is absolutely no question about its merits.

Write, giving amount of lime used daily, current available, with costs.

We make machines of special construction for any purpose.

The National Laundry Machinery Co. Dayton, O., U. S. A.



Put It Under The Magnifying Glass

Examine this rope closely.

See how fine the fibers are, how smooth they lie,—nothing but pure, long Manila. Note the evenness of the yarns, all edged to withstand wear—how carefully the whole rope is laid.

That's the *sight* test of

AMERICAN
TRANSMISSION ROPE

The *wear* test bears out the sight test, for the quality of AMERICAN TRANSMISSION ROPE is more than surface deep.

There's the strong, specially made core—the backbone of the rope. That's all Manila, too. There's the internal lubricant that minimizes friction in the fibers, ensuring them a long life of service. This lubricant, moreover, works to the surface of the rope and effectively waterproofs and protects it.

You know the exacting conditions of transmission rope service. Use AMERICAN ROPE and get greater economy and efficiency.

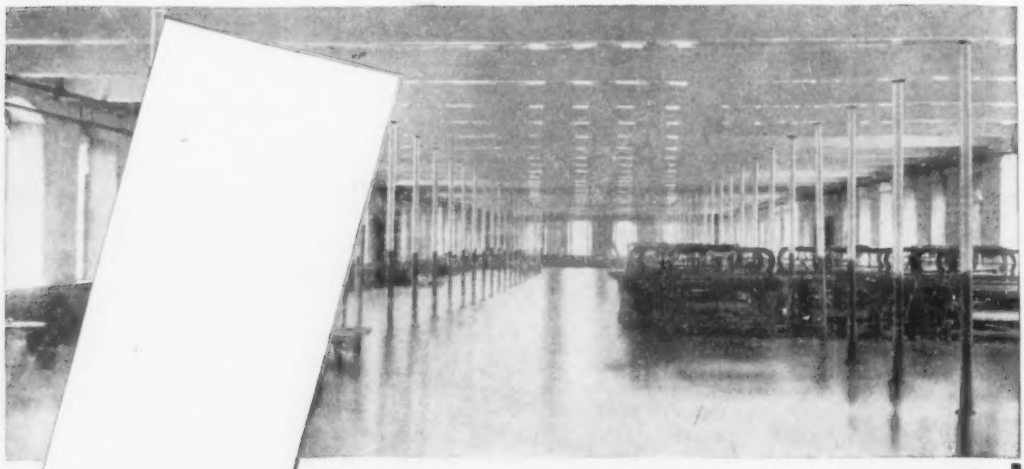
Write for this free book

Let us send you our "Blue Book of Rope Transmission." Contains much valuable information about rope-driving and power efficiency.

We Ship Without Delay—on Telegram if Necessary—from either point of manufacture

American Manufacturing Co.
Dept. T
Brooklyn, N. Y. City

St. Louis Cordage Mills
Dept. T
St. Louis, Missouri



This Free Sample Shows How We Made This Old Factory "Sparkle"

An old New England Textile Mill with thick walls, small windows and low ceilings is not the best place for ideal lighting conditions. But note the interior pictured above. Under all these handicaps this concern has approximated concrete and glass lighting by the simple and inexpensive application of a permanent light-diffusing factory paint. The explanation is "*They use all the light that enters.*"

No dirty walls, oil-soaked ceilings or dingy gray paint remains to absorb the profit-producing rays that increase the daily output in any plant. Instead a pure white flint-like surface—that reflects and diffuses all the light—aids workmen—brightens up dark corners—stretches out the *natural* working day by postponing artificial lighting.

Chaffee's Mill White

More Years of Wear—33% More Light—A Sanitary Finish

A paint of intense body with such easy working properties under the brush that the decreased cost of application (which is about ⅔ total paint cost) practically balances the difference in cost of stock between this paint and inferior preparations.

Once applied its advantages are readily apparent. A smooth impenetrable coat of pure white results, that will not chip, scale or flake off under heavy vibration—that sheds dust like an enamel, washes equally as well, and *never* turns yellow with age as do oil paints in *a short period.*

Let us tell you more about this "paint with a purpose"—its sanitary properties as compared to lead or oil—its elastic qualities that prevent cracking even on ceilings that jar, spring and sag under the stress of moving loads above. No other paint or wall covering can equal it in endurance—no other is lower in ultimate cost.

Send for booklet, "A Paint With A Purpose," and sample board that actually demonstrates the "Glitter bright" qualities of this most inexpensive and effectual aid to efficiency.

Fill out the coupon today.

P.W.R.
Thomas K. Chaffee
Providence, R.I.

I am interested in the results that can be obtained by the use of your Mill White. Send me booklet and sample board, understanding that it puts me under no obligation other than to compare the quality and price of Chaffee's Mill White with any other interior paint on the market.

Name.....
Firm.....
Address.....

Thomas K. Chaffee Co., Providence, R. I.

Prevention of Industrial Accidents

Is one of the Most Serious Problems Confronting Employers of Labor To-Day

EYE GUARD ON SHAFT LATHE

The Compensation and Liability Contracts

OF THE TRAVELERS INSURANCE COMPANY PROVIDE THE MOST COMPLETE COVERAGE BASED ON AN UNEQUALED EXPERIENCE AND AS THE RESULT OF TWENTY YEARS PRACTICAL EXPERIENCE

The Most Effective Service for the Prevention of Accidents in the World

TRAVELERS SERVICE provides systematic and minute investigation of plants and equipment; advice as to the elimination of danger points, installation of efficient and economic safety devices, handling and storage of material, factory methods and supervision. ¶ Inspections are made by specialists where needed and by general inspectors acquainted with the work of all departments of a plant and of general constructive methods. During 1912 The Travelers made 142,000 inspections involving 850,000 recommendations for improvement of working conditions. ¶ The Pennsylvania Railroad after largely reducing the number of serious accidents to the shop employes stated: "We should fail in our duty if we did not give The Travelers Insurance Company credit for the systematic methods now in use over the Pennsylvania lines."

An Injury Prevented is a Benefaction — An Injury Compensated an Apology

The Travelers Insurance Company
HARTFORD, CONN.

Tex. World Rec. L. TEAR OFF

The TRAVELERS INSURANCE COMPANY, Hartford, Conn.

Send me TRAVELERS Standard for one year without charge.

Name..... **Address**.....

DIETZ IMPROVED "BLIZZARD" MILL LANTERN

(COLD BLAST)

APPROVED BY INSURANCE INSPECTION DEPARTMENTS

Hinged Wire Guard

Reinforced Tubes

One Inch Wick

The Frame is Securely Braced to Fount

Safety Oil Well in Fount

Positive Locking Device

Total Height 14¾ inches

Light of 10 C. P.

Solderless Oil Fount Guaranteed Oil Tight

Burns 19 Hours with One Filling

The Most Reliable and Satisfactory Lantern

To place in the hands of a night watchman. The positive locking attachment prevents access to flame.

Dietz Mill Lanterns are for sale by dealers in Hardware and Mill Supplies Everywhere

Send for Our 200-Page Catalogue Illustrating Other Lanterns and Lamps for Mill Use

R. E. DIETZ COMPANY - - NEW YORK CITY

FOUNDED 1840. LARGEST MAKERS OF LANTERNS IN THE WORLD

The only Roofing you can afford to use

Face the roofing problem fairly and squarely. Can you afford a roofing that requires constant coating? No matter how little you pay for such a roofing it is an expensive proposition in the long run. In a few years your bills for coating and repairs will amount to more than the original cost!

Roofing expense ends for all time when you use

J-M Asbestos Roofing

Its first cost is the last cost. Being *all mineral* it contains nothing to rot, rust or deteriorate in any way. Hence it never requires coating or graveling.

Made of Asbestos (rock) felt cemented, layer upon layer, with Trinidad Lake Asphalt, the greatest waterproofing substance in existence.

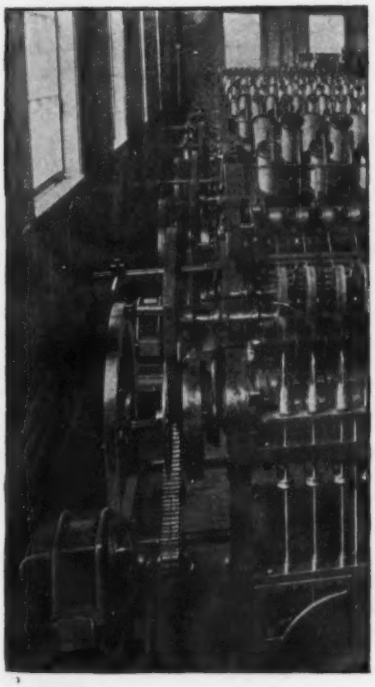
J-M Asbestos Roofing is lower in first cost than shingles, tin or slate—and cheaper than all other roofings on the cost-per-year basis. Gives perfect fire protection. Suitable for any type of building in any climate. Easy to lay. Comes in rolls, in flat sheets, and in built-up form.

Sold direct if your dealer can't supply you. Write our nearest Branch for sample of the wonderful Asbestos Rock and Book No. 303.

H. W. JOHNS-MANVILLE CO.

Albany, Baltimore, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Detroit, Indianapolis, Kansas City, Los Angeles, Louisville, Minneapolis, New Orleans, Milwaukee, New York, Omaha, Philadelphia, Pittsburgh, San Francisco, Seattle, St. Louis, Syracuse

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED, Toronto, Montreal, Winnipeg, Vancouver. 2003



INCREASE YOUR PRODUCTION

BY USING

Morse Flexible Gearing

This form of transmission is **Durable, Silent, Highly Efficient,** provides a **Positive** speed ratio and runs with a **Minimum** amount of care and attention.

The installation of the spinning frame drives shown here **Increased the Production** in this room by keeping the cylinder shafts absolutely up to speed at all times.

The service obtained from these **Morse Silent Chains** was upwards of **12,000 Hours. No other form of Transmission** has ever approached this record in connection with the individual motor equipment.

We now have in successful operation drives transmitting an aggregate of over 500,000 H. P. Individual drives running from 1 H. P. to 2000 H. P. each.

Let us figure on some of your power transmission problems.

Our Bulletin No. 9B is particularly interesting.

MORSE CHAIN CO, Ithaca, N.Y.

N. E. Branch, 141 Milk St., Boston

KisselKar Truck Operated by William Stickel Co., Jersey City, N. J.

Service is written into the sale of KisselKar trucks

When you select a motor truck you want to be sure that it is *mechanically right*—one which has demonstrated in actual use that it is adapted to *your* requirements. It is not enough *that it looks* good. What it has done out on the road is the information you want.

But do not let your investigations rest there. Find out about the reputation of the manufacturer. Find out about his financial standing. Find out about his manufacturing facilities. Find out his method and manner of SERVICE.

And when you look into KisselKar SERVICE—the *all-important factor to a truck owner*—you find SERVICE *written into the sale*—not vague promises, but a definite and specific contract, with complete facilities to insure its performance—and back of this service is stability and responsibility.

You are entitled to the *uninterrupted* use of your truck, adequate provision to supply you quickly with duplicate parts, the requisite skill to install or replace them and regular inspection—all at the least possible cost.

There is no truck that can show a cleaner duty record than the KisselKar Truck. There is no other maker that offers you equal service.

Illustrated portfolio just issued. Send for your copy.

KisselKar Trucks are built in six sizes—1500 lbs., 1, 1½, 2½, 3½ and 6 ton capacity

Kissel Motor Car Company
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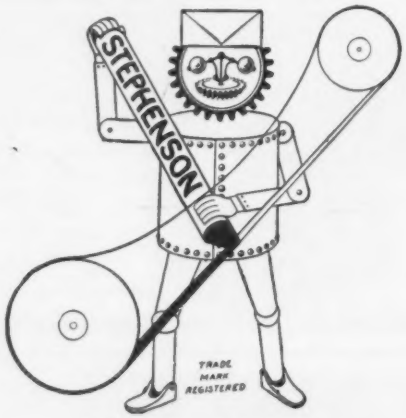
Because it stops the belt from slipping and causes it to transmit all the Power without being made so tight as to cause unnecessary friction.



This Registered Trademark Is Your Protection

It appears on each stick of Genuine Stephenson Bar Belt Dressing—the dressing that has held to its uniform quality for 23 years.

This belt dressing surpasses liquid preparations, for there is absolutely no waste in applying it to the belt, and it is put up in sticks or solid form, so that it can be carried about in the tool-box. For these reasons—

1 Pound Lasts as Long as 2 Pounds of Any Liquid or Semi-Liquid Dressing.

There are two brands, Red Label for leather belts, Green Label for rubber, canvas, or balata belts.

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Main Office and Works,
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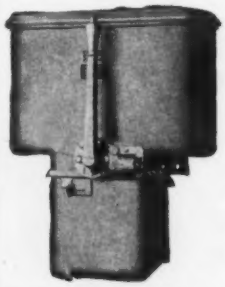
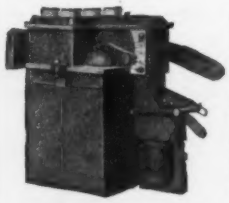
WESTINGHOUSE CONTROLLERS

For Textile Mill Motors

are specially designed to meet every condition of this difficult service. Their chief features are perfect safety and thorough reliability.



Two-Point Auto-Starter for Conduit Connections—Used where the motor cannot be connected directly across the line on starting. Connections are made through conduit, no exposed wiring. Only 6 connections needed for three-phase circuits and 8 for two-phase. Provides overload and no-voltage protection. Contacts are oil immersed and are easily renewed. Supplied in all sizes above 5 H. P.



Four-Frame-Drive Oil Switch—Specially designed for this service. Connects a 20 H. P. motor directly across the line. Provides overload and no-voltage protection. Arranged for mounting on the ceiling.

Textile Motor Oil Switch—Supplied for motors of all capacities up to 10 H. P. Reversing and non-reversing; hand or remote control. Non-automatic. Very simple and compact. Arranged for conduit connection. Thousands in use.

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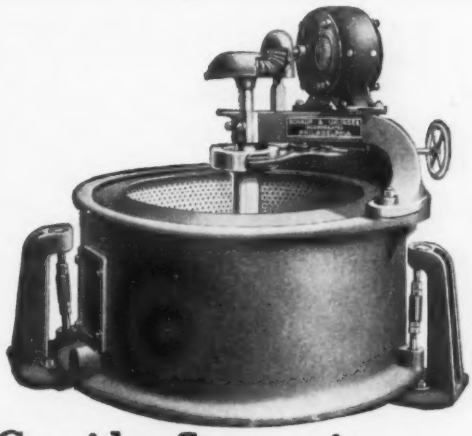


Consider Success in Selecting Extractors

Thousands of S. & U. Extractors are now in use by 1350 concerns, one alone operating over 40 machines. This success, gained by 50 years of scientific, centrifugal building, is your safest guide in selecting an extractor. Users from coast to coast have proclaimed the S. & U. Centrifugals better able to take care of their separating problems than any others. The "why" is just this.

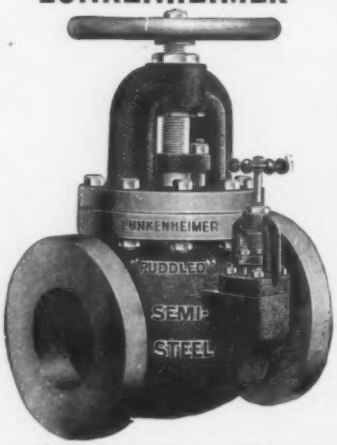
Schaum & Uhlinger Centrifugals

are not only *constructed* of the best material, but also designed with the forethought of the conditions under which they must operate. For instance, look at the motor-driven extractor pictured above. It runs by alternating or direct current, and operates in just enough floor space to set the tub. It is self-balancing and controlled by a powerful toggle brake, which will bring it to a quick stop after the switch is thrown out.

These are just a few interesting features of one of our extractors. Our book tells about *all* types. It's called "Centrifugal Extraction." Will you write for it today.

Schaum & Uhlinger, Inc.
204 Glenwood Avenue
Philadelphia

LUNKENHEIMER "PUDDLED" SEMI-STEEL VALVES



These valves are particularly adapted for high pressures and superheated steam, and are in use, giving perfect satisfaction, in a large number of high pressure power plants.

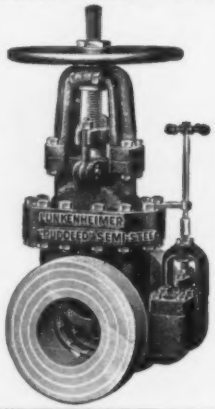
The "Puddled" Semi-steel as used in Lunkenheimer Valves is an extremely high grade iron and steel alloy of very close grain and great strength, the tensile strength per square inch being 35,000 pounds.

All parts subjected to wear are renewable, making the valves practically indestructible.

The line includes *Globe, Angle, Cross, Gate, Check and Non-Return Safety Boiler Stop Valves*, guaranteed for **working pressures up to 250 pounds per square inch**, and to suit various conditions of superheat and meet the specifications of engineers who differ as to the material used for the trimmings, Lunkenheimer "Puddled" Semi-steel Valves are made in two combinations.

For extreme conditions of superheat and strain, these valves can be made of **Cast Steel**, the tensile strength of which is about 80,000 pounds per square inch. They can also be made of a high grade **Cast Iron**, having a tensile strength of 25,000 pounds per square inch.

Specify and insist upon securing genuine **Lunkenheimer make.** Do not accept substitutes they are never as good as the genuine.



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UNIFORM COLOR

Dyes Wool and Tops—100 per cent. of Batch—absolutely level color throughout

NO FELTING

The Mass—Dormant While Dyeing—Cannot be Felted. Fibre comes out as Alive—Soft—Elastic and Spinable as it was Before Dyeing

DYES LOOSE WOOL

Acid Colors	2,000 pounds per day
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Have You a Pumping Problem to Solve?

Then you will want a copy of this pump data book. It gives general instructions and the various tables needed in selecting a pumping equipment for any service.

Our local representative will also be glad to assist you with any engineering help you may wish on pumps or pumping.

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LARGEST MFR. OF PUMPS FOR EVERY SERVICE

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THESE MEN
Can Be Used to Better Advantage

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The whole secret lies in the revolving base which makes this tiering machine so flexible that it seems to be almost human.

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It is even better than daylight, — makes every thread stand out, — every defect is immediately seen.

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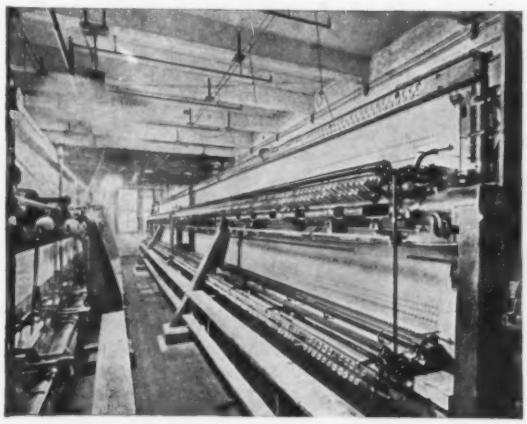

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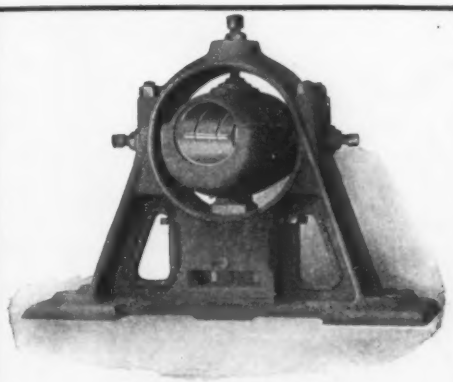

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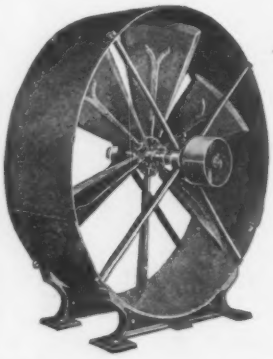

The superior durability and adaptability of Perkins Ventilating Fans are results of these features : instead of cast iron construction in general, Perkins Fans have steel frames, steel drums, steel blades, arms, shafts, etc.

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They can, therefore be set at any angle necessary to vary the Fan's capacity without a change in the speed of the Fan.
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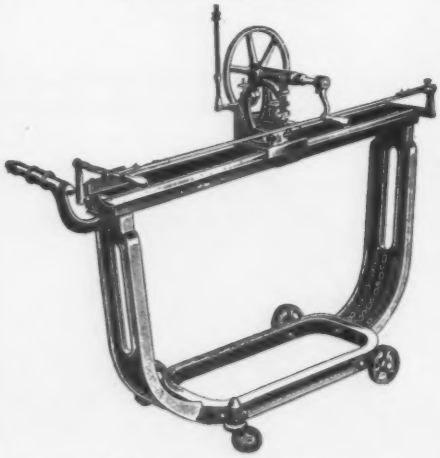
Even when run by Low-Priced Help



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For the finishing processes at your Shears, Gigs, Calendars, Printing Machines, etc., this machine will be found especially desirable, as it is easily moved about, and sews a firm chain-stitch; can be easily removed after the goods are finished.

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These machines are built of different lengths and will sew wet or dry, thick or thin goods.

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Murphy Furnaces are adaptable to any kind and any size of boiler—are automatic in all their functions—handle efficiently heavy overloads with minimum attention—are practically smokeless.

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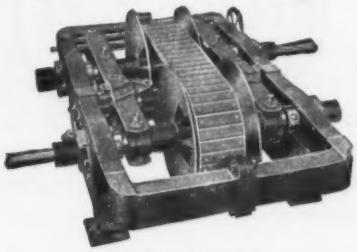

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Tolhurst Self Balancing Extractors

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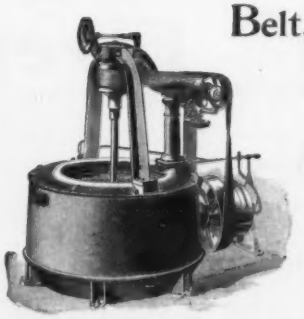

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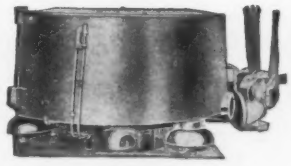

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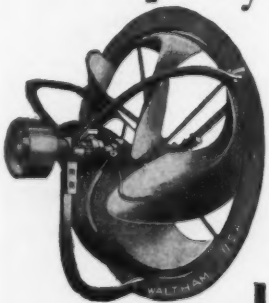

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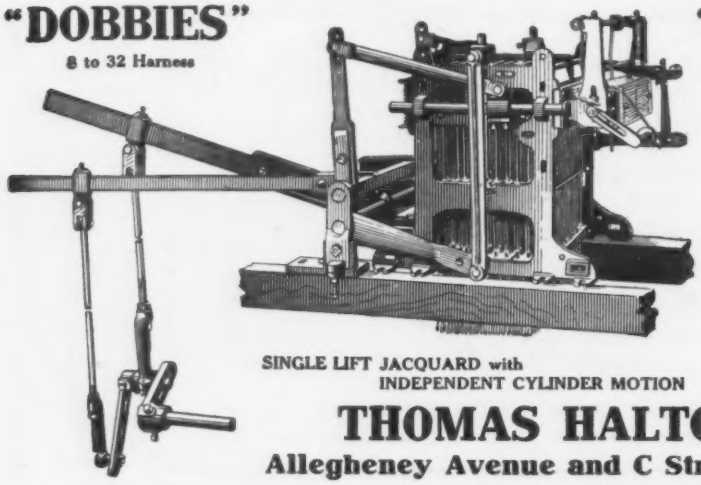

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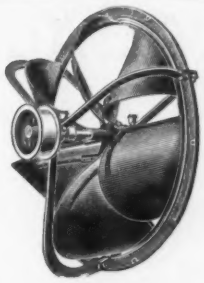

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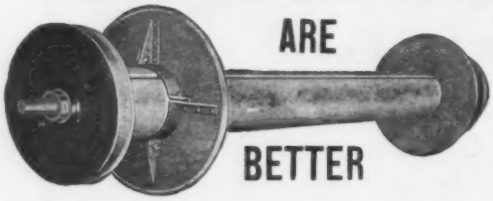

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AND ALL BRAIDED FABRICS

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Protect Yourself Against Liability Laws

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Special laboratories for the accurate and expeditious solution of problems relating to the application and cost of colors for all materials.

BADISCHE COMPANY
New York

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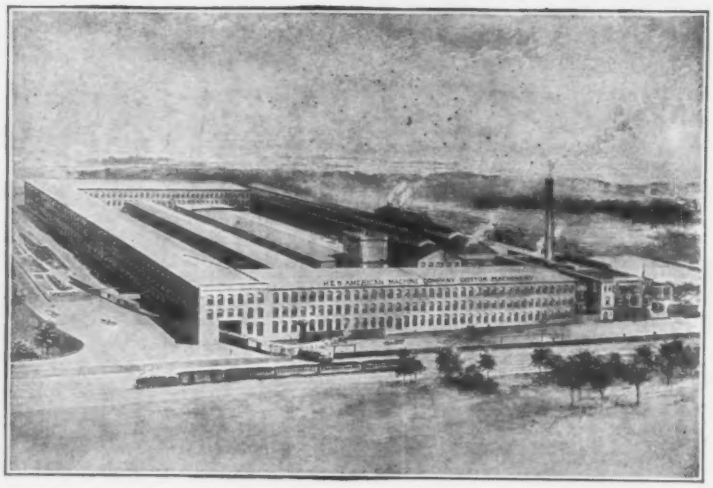
Correspondence

We solicit correspondence on textile subjects. Articles accepted will be paid for. Name and address must always be given, not necessarily for publication. Subscribers are invited to make free use of our Questions and Answers Department; correspondence is strictly confidential.

COTTON MACHINERY



PICKING MACHINERY
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SLUBBING, INTERMEDIATE ROVING AND JACK FRAMES
NEW PATTERN SPINNING FRAMES } WITH BAND OR TAPE DRIVE
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TEXTILE WORLD RECORD

FEBRUARY, 1914

Monthly Comment.

Protection Going and Coming

Amid all the clamor made by partisans of protection on one hand and of free trade or a tariff for revenue on the other, with their conflicting claims, which have no effect on the opposing side, there have been those among us who have consoled ourselves with the thought that actual results made evident by the going or coming of protection would provide something to convince one side or the other of the fallacy of its position. If the Journal of Commerce of New York is to be believed, however, that hope is to be blasted, and whatever happens to prices under the present free wool and free sugar tariff is to be accepted as proof of the futility of protection. Commenting on the refusal of farmers in the West to accept reduced prices for sugar beets under the new tariff, that journal says:

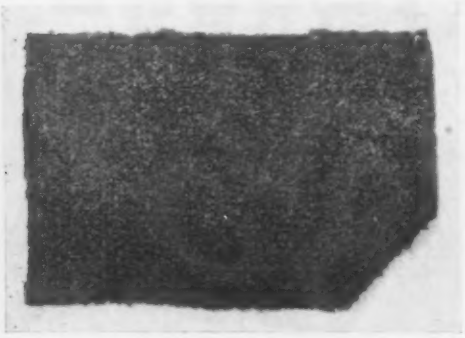
> The announcement that growers of sugar beets in the West refuse to accept the lower prices for beets offered by the beet sugar factories, and will prefer to plant their lands with other crops, confirms the ideas entertained by students of the sugar situation. It has long been contended by those who desired to have the tariff maintained at a high point that a large share of the benefits of the duties went to the "farmer"—a view that has been strenuously opposed by nearly all the closer students of the situation. In proposing to shift to other crops if not allowed the prevailing rate for beets, the farmers sustain the belief that they have not been obtaining more for their service than they were normally entitled to. The natural consequence of the position they have assumed will be the maintenance of the old price for beets, and the placing of the burden of tariff reductions upon the producers of the sugar.

Three things may happen to prices. They can advance, remain stationary or go down. If the price of beet sugar had advanced after the present tariff became a law, that unquestionably would have been hailed by freetraders everywhere as proof that free trade, not protection, benefited the farmer. If the price had remained unchanged, that would hvae been cited as proof that free trade worked no injury, and protection no benefit, to the farmer. Now that the price of sugar beets has declined, our low tariff, if not free trade, contemporary cheerfully informs us that this decline confirms the views of "nearly all the closer students of the situation" that the benefits of protective duties do not go to the farmer. All this prompts us to ask the Journal of Commerce what combination of conditions in the market for sugar beets under the present tariff it would accept as proof that protection does benefit the farmer.

The Consumer's Share

Many retailers of dry goods throughout the country have during the past few weeks, exhibited their business sagacity and appreciation of an advertising opportunity by announcing reductions in the prices of cotton dress goods as a result of the reduction of the tariff on this class of merchandise. January is a month to which the almanac maker can safely attach the note "About this time expect bargain sales". For this reason the suspicion naturally arises that other influ-

ences besides tariff reduction may have contributed to the shrinkage in the retail prices of cotton goods. It is extremely difficult to discover without having access to the books of a firm the exact amount that a retailer saves on the price of imported textile goods as a result of a reduction of the tariff. Still one can with a little care obtain a fair idea



SAMPLE OF IMPORTED RATINE

of this saving. We selected the goods of a Western retailer, who, more careful in his claims than were many of the retailers, had announced a tariff sale with these words: "Lower Prices than Ever by Help of the Tariff". We obtained samples and prices of the cotton goods that had been marked down and the imported ratine shown in the illustration is a fair sample of the others. This fabric was advertised at 76 cents a square yard, marked down from 97 cents. An analysis showed it to be made as follows:

Warp, 21 threads 4-ply.
Filling, 20 threads 4-ply.
Weight, 2.2 sq. yds. per lb.
Average yarn No. 15.5.

Under the Payne law the specific duty on this cloth did not exceed 9 cents per square yard. Assuming a foreign value of 35 cents per square yard, the Underwood tariff, 12 1/2 per cent., is 4 3/8 cents, so that the reduction of the tariff on this cloth amounted to not more than 4 5/8 cents. This, under the conditions stated, is the greatest possible share of the tariff in bringing about the markdown of 21 cents a square yard from 97 to 76 cents. And yet the inevitable result of such advertising is to create in the public mind the impression that the recent tariff revision is responsible for the entire reduction.

The Average Yarn Number of Cotton Cloth

A noteworthy feature of the cotton cloth tariff is the rapidity and ease with which the trade and the government have become familiar with its application. Based, as it is, on the number of the yarn, which is peculiarly a technical standard for mill work, the new schedule at first appeared confusing and complicated to cotton goods merchants and government officials. The explanation in our October, 1913, issue that what appeared to be a complicated mill standard was in reality a simplification of the old system of basing cotton cloth rates on square yards per pound and threads per inch removed the doubt and misunderstanding, showing that, instead of increasing tariff difficulties, the new schedule meant the substitution of a very simple system for one that was exceedingly complex.

Attempts have been made, nevertheless, in some quarters to discredit the average yarn number as a basis for the cotton cloth schedule. The first of these did not deserve serious consideration, and have passed into oblivion. The latest comes in the form of a recommendation that the cotton cloth rates be revised by adjusting them to the picks per inch instead of the average yarn number. This suggestion is made on what is nothing more than mere assumption that the picks per inch are proportionate to the conversion cost of cotton cloths. Every experienced textile manufacturer will recognize at once the fallacy of that proposition. The picks per inch are approximately in proportion to the cost of weaving cloth, but even this is true only when applied to one class of goods. The weaving cost, however, is not a measure of the total cost of converting raw material into a finished fabric, and for that reason tariff rates based on the picks per inch would not be in proportion to the conversion cost.

This fact is illustrated by Table 215 of the Tariff Board report on the cotton schedule,

which gives the estimated cost of production for 1,285 cotton cloths. We have classified 354 of these estimates of plain grey fabrics according to the labor cost per pound of cloth and the proportion of the total cost represented by the cost of conversion, with the following results:

Picks per inch	Variation in Cost Percentage of Conversion Cost	Labor Cost per Pound Cloth
24	15 to 44	.03 to .167
28	26 to 45	.069 to .163
30	7 to 35	.01 to .058
36	16 to 52	.019 to .152
38	22 to 37	.024 to .073
40	18 to 36	.019 to .076
42	18 to 40	.027 to .076
44	21 to 59	.024 to .187
46	21 to 57	.027 to .087
48	16 to 57	.018 to .142
50	20 to 38	.027 to .076
52	19 to 44	.02 to .085
56	28 to 42	.032 to .10
60	27 to 46	.038 to .102
64	26 to 41	.037 to .099
66	26 to 33	.038 to .044
68	27 to 63	.035 to .193

Both the percentage of conversion cost and the labor cost per pound of cloth are given in order to show how a cotton cloth tariff based on the picks per inch would operate with either ad valorem or specific rates. Wide as these variations are, even wider fluctuations would undoubtedly be disclosed by extending the list to include fancy goods or a larger number of plain fabrics. The variations shown prove beyond question how completely the picks per inch would fail as a means of adjusting tariff rates to the conversion cost of cotton cloth.

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Short Time on the Continent

The short time schedule which went into operation in the cotton weaving mills of South Germany and Alsace some months ago is still in force. The demand for goods continues slack and stocks are accumulating in spite of the curtailment of output, which amounts to 17 per cent. of the full production. The cotton spinners of Belgium are also operating their mills on short time, five days per week. While the short time agreement expires on Feb. 28, it is reported that the market for yarn is not likely to warrant a resumption of full time.

Abuses in the Marketing of Cotton

The Department of Agriculture has been engaged for a year in an investigation of the methods of marketing Oklahoma cotton and finds the cotton grower getting the worst of it at practically every point. The report of the inquiry, which has recently been made public, goes into the question in great detail. Following are some of the conclusions:

There is not a single important step or press in the entire cotton handling and marketing scheme which owes its origin to a special consideration of the producer's interests.

Practically every feature of the handling and marketing system is retained because of the insistence of some one of the numerous middlemen and carriers who have at best only a temporary interest in cotton.

In general, the ginners, who buy a large proportion of the cotton, pay very nearly the same price for all cotton purchased on a given day.

In many street markets, even where there are a large number of buyers, widely differing prices are paid on the same day for bales of identical quality. There is no uniform price even for middling cotton.

The differences fixed by Oklahoma firms allow only about one-half as much premium for grades above middling as do the differences of the New York Cotton Exchange. This, however, should not be construed as an approval of the New York fixed difference system.

In actual street buying the premiums paid for bales grading above middling are far less than the locally advertised differences for such grades. In some cases the bulk of the cotton is bought as middling for weeks at a time, when a large majority of the bales are actually above that grade.

Except in the southeastern part of the State no attention is paid to length of staple in fixing the price of the individual bale, but certain regions receive slightly higher prices than others because of reputed superiority of average staple.

The cotton trade in Oklahoma recognizes no grade above good middling although many thousand bales of higher grade are produced.

The prices paid to farmers both for seed cotton and for lint are too largely based on a system of averages. This works great injustice to the producers of the best grades, and discourages careful picking and improvement of varieties in length of staple.

The farmer is not a party to the neglect which results in most of the country damage, but he receives no compensation for

This investigation of the methods of marketing cotton is work of the right kind which might profitably be extended to include the marketing of manufactured goods. It would probably be found that as great abuses exist in the goods market as in the market for the

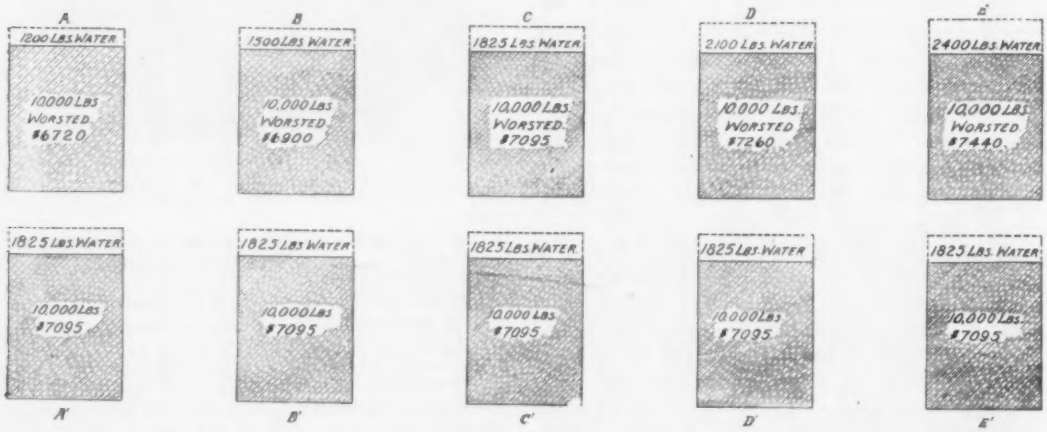
raw material, and that in both fields the burden of these abuses is invariably borne by the producer and consumer for the advantage of the middleman.

The Commercial Effect of Conditioning Worsted

A correspondent recently asked us what effect the conditioning of worsted tops or yarn has on the price per pound. He expressed the opinion that conditioning was a scheme of the Bradford trade to get the best of the other fellow, and that it would be more appropriate to call the moisture bought from Bradford a reloss, rather than a regain. The man's lack of information regarding conditioning is shared by many in the wool, tops and yarn trade, and it may be worth while to give some attention to the inquiry.

Wool as found in commerce always carries more or less moisture, the quantity varying with the temperature and relative humidity of the air (space). It is obvious that if worsted carries but a small quantity of water, a pound of it represents more actual wool or worsted than does a pound when the material carries a larger quantity of water. This is elementary, but it explains why it is necessary to establish a standard for moisture in worsted so that the pound on which the price is based shall always represent the same proportions of wool and water.

The actual weight of worsted yarn represents different proportions of water and wool, sometimes more water, sometimes less. Conditioning is the process of determining what the weight of worsted would be if there was 18 1/4 pounds of water for every 100 pounds of dry wool. If there is less than that amount of water present, the conditioned weight will be greater than the actual weight; if there is more than that amount of water present, the conditioned weight will be less than the actual weight. And if there is that amount of water present, the conditioned weight and the actual weight will be alike. In other words conditioning worsted is establishing a standard weight for the material by which a seller always delivers and a buyer always receives the same weight of absolutely dry worsted, and, consequently, by which a dealer who both buys and sells a lot of worsted, delivers the same amount of dry worsted that he received. This is apparently a very simple problem, but when applied to the actual business of buying and selling worsted, it results in many perplexing complications.



A, B, C and D, represent five lots of worsted yarn, each consisting of the same amount of dry worsted (10,000 pounds), but different quantities of water.
A', B', C' and D' represent the conditioned weight of the same lots, each consisting of the same amount of dry worsted and of water.

The effect that a variation in moisture has on the commercial value of worsted may become somewhat plainer by reference to the accompanying diagrams, A, B, C, D and

E, which represent five equal quantities of worsted yarn carrying five different quantities of water. Let us assume, for illustration, that the shaded part of each square represents 10,000 pounds of absolutely dry worsted yarn, and that the water, represented by the blank space within the dotted lines, amounts to 1,200 pounds at A; 1,500 pounds at B; 1,825 pounds at C; 2,100 pounds at D; and 2,400 pounds at E. The actual weights of these five lots of worsted are then as follows:

	Dry Wool.	Water.	Total.
A.	10,000 lbs.	1,200 lbs.	11,200 lbs.
B.	10,000 lbs.	1,500 lbs.	11,500 lbs.
C.	10,000 lbs.	1,825 lbs.	11,825 lbs.
D.	10,000 lbs.	2,100 lbs.	12,100 lbs.
E.	10,000 lbs.	2,400 lbs.	12,400 lbs.

As each of the five lots represents the same quantity of worsted (wool), it is obvious that they are of equal commercial value, because they would each make the same quantity of cloth and would weigh the same if exposed to the same atmospheric conditions. If, however, they are sold at the same price, say 60 cents, per pound actual weight, they would bring widely varying amounts, as will be seen by the following:

A.	11,200 lbs.	.60	$6.720
B.	11,500 lbs.	.60	6.900
C.	11,825 lbs.	.60	7,095
D.	12,100 lbs.	.60	7,260
E.	12,400 lbs.	.60	7,440

The worsted weavers who buy these five lots each get the same quantity of yarn, but widely different quantities of water. If the price is based on the actual weight at the time of sale, the weaver who buys lot A pays for 1,200 pounds (144 gallons) of water, while the purchaser of lot E pays for 2,400 pounds (288 gallons) of water, making at 60 cents a pound a difference of $720 in the cost of the two lots. In order to overcome these variations in the commercial value of yarn sold by the pound, actual weight, the English worsted trade has for years agreed that the standard weight of worsted yarn should be represented by 18 1/4 pounds of water for every 100 pounds of absolutely dry worsted (wool), and that the price per pound should be based on the weight of worsted yarn in that standard condition. If a lot of yarn contained more or less than the standard amount of water, the total weight invoiced is what the yarn would weight if it carried that amount. Under this rule the invoice weight of lots of yarn like A and B, which carry less than 18 1/4 pounds of moisture to 100 pounds of dry worsted, would be increased, while the weight of lots like D and E, which carry more than the standard amount of moisture, would be decreased.

The importance of the process of conditioning, to the seller as well as the buyer, may become still plainer by considering the amount of money represented by the deficiency or excess of water in four of the lots, A, B, D and E. Assuming that a fair price for the yarn is 60 cents a pound, conditioned weight, as represented by lot C, the buyer of lot E on the basis of actual weight pays 60 cents a pound ($50.10 per gallon) or $345 for 575 pounds (69 gallons) more water than he should pay for. On the other hand, the seller of lot A on the basis of actual weight invoices at 60 cents a pound, 625 pounds less than he would have invoiced on a conditioned basis, the difference amounting to $375. He thus gives the purchaser of lot A the opportunity to add 625 pounds (75 gallons) of water to the material and sell the water at 60 cents a pound or $50.10 per gallon.

The process of determining how much a lot of yarn would weigh if in standard condition as to moisture is called conditioning. It consists in weighing a sample drawn from the lot, drying it absolutely dry, weighing it again, adding 18 1/4 per cent. to the dry weight, and then calculating the weight of the entire lot from the data thus obtained. If, for example, the five lots, A, B, C, D and E, of worsted yarn were conditioned, the conditioned weight of each would be the same, 11,825 pounds, represented by the diagrams, A′, B′, C′, D′ and E′. At 60 cents a pound, each lot would be sold for the same amount, $7,095, and each purchaser would receive the same quantity of yarn. The process of conditioning, by which a standard amount of mois-

ture is determined, is as essential to fair dealing between buyer and seller as is a uniform standard for the pound or for the dollar. A variation in any one of these three standards, money, weight or moisture, operates to defraud either the buyer or the seller of not only worsted, but all other textile materials.

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Imports of Textiles from England

The figures for the textile exports from Manchester and Bradford for December, 1913, show that the Underwood tariff has resulted in a marked increase in the American trade of these English textile centers. The following table is compiled from returns by the American consul at Manchester, and shows the exports of textiles from that district to the United States for December, 1913, as compared with December, 1912:

December	1913	1912
Asbestos	$9,942	$16,853
Card Clothing	12,123	5,576
Carpets and rugs	2,839	1,150
Cattle hair and other hair	7,719	1,017
Cotton (Egyptian)	...	16,706
Cotton and worsted and worsted stuffs	40,422	9,567
Cotton piece goods	426,465	282,200
Cotton, velvets, etc.	43,856	28,205
Cotton yarn and thread	229,945	251,499
Curtains (lace)	2,796	...
Elastic web, cord, etc.	327	1,667
Felt hats and other hats	1,930	5,700
Handkerchiefs	10,143	7,869
Hosiery	1,010	1,676
Laces, nets, etc.	10,447	15,430
Linens	163,796	183,849
Quilts	13,092	8,356
Rags and paper stock	200,570	196,955
Shawls	3,155	...
Silk and silk and cotton piece goods	1,314	904
Silk yarn	8,539	14,059
Tape and braid	1,572	1,622
Towels	5,916	4,101
Waterproof garments and cloth	1,561	2,076
Wool	792	...
Wool, felt, blanketing, lapping	8,156	8,361
Yarn (other than cotton and silk)	6,653	...
	$1,205,080	$1,065,398
Other than textile products	471,635	320,497
Total	$1,676,715	$1,385,895

As the new rates on wool goods did not become effective until Jan. 1, 1914, the increase in Bradford's exports to the United States is all the more significant, and indicates an even larger volume of this trade in the immediate future. The exports from Bradford to this country for December, 1912 and 1913, also the totals for the two years are as follows:

December	1913	1912
Stuff dress goods	$303,290	$80,705
Stuff linings	393,885	118,850
Worsted coatings	217,710	39,070
Wool tops	106,455	...
Total manufactures	$1,021,340	$238,625
Wool noils and waste	59,815	...
Wool	594,000	418,920
Total	$1,675,155	$656,545
	1913 12 months	1912 12 months
Wool	$3,962,110	$7,515,655
Stuff dress goods	958,645	870,030
Stuff linings	1,208,145	942,365
Worsted coatings	694,565	331,855
Cotton dress goods	812,685	619,565
Cotton linings	1,339,610	1,453,315
Worsted and mohair yarns	169,805	10,390
Total manufactures	$9,145,565	$11,743,175
Wool noils and waste	238,920	71,580
Wool tops	130,865	...
Total	$9,515,350	$11,814,755

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The World's Census of Flax Spindles

The International Federation of Flax Spinners has recently compiled a census of the flax spindles throughout the world. The United Kingdom stands at the head of the list, France coming second and Russia third, while the United States has the distinction of having the smallest number of any country in the list:

United Kingdom	1,161,874
France	567,079
Russia	367,207
Belgium	315,404
Austria	296,833
Allemagne	272,934
Italy	20,000
Sweden	18,150
United States	8,612

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The number of sheep in New Zealand on April 30, 1913, was 23,651,151, this being 89,000 less than on the same date of 1912.

"Pure Textile" Legislation

Since our last issue appeared there has been a decided increase in the interest in the so-called "pure textile" legislation. A gratifying development has been the growing sentiment in favor of legislation based on the principle of the British Merchandise Marks Act, which forbids the false description of products offered for sale, but does not require the impossible labeling of goods to indicate their composition. The following extract from the British Act shows its underlying principle, which is to forbid and punish misrepresentation and fraud in the sale, not only of textiles, but of merchandise of all kinds:

> Every person who applies any false trade description to goods (or causes it to be done) shall, subject to the provisions of this Act, and unless he proves that he acted without intent to defraud, be guilty of an offense against this Act.
>
> Every person guilty of an offense against this Act shall be liable—
>
> (1) On conviction on indictment, to imprisonment, with or without hard labor, for a term not exceeding two years, or to fine, or to both imprisonment and fine; and
>
> (2) On summary conviction to imprisonment, with or without hard labor, for a term not exceeding four months, or to a fine not exceeding twenty pounds, and in case of a second or subsequent conviction or imprisonment, with or without hard labor, for a term not exceeding six months, or to a fine not exceeding fifty pounds.
>
> The expression "trade description" means any description, statement, or other indication, direct or indirect.
>
> (a) As to the number, quantity, measure, gauge, or weight of any goods, or
>
> (b) As to the place or country in which any goods were made or produced, or
>
> (c) As to the mode of manufacturing or producing any goods, or
>
> (d) As to the material of which any goods are composed, or
>
> (e) As to any goods being the subject of an existing patent, privilege, or copyright, and the use of any figures, word, or mark which, according to the custom of the trade, is commonly taken to be an indication of any of the above matters, shall be deemed to be a trade description within the meaning of this Act.

Condemnation of the pending bills and approval of the principle of the British law were voiced in no uncertain terms by the National Wholesale Dry Goods Association at the convention held at New York on January 22. John V. Farwell, of Chicago, the second vice-president, presided and on motion of Frank H. Evans, of Strawbridge and Clothier, Philadelphia, the following resolution was adopted:

> Whereas, We desire to express our complete sympathy with any movement that has commercial honesty in view, but with regard to various bills that have been introduced in the Congress that require the name of the manufacturer shall be placed on merchandise, we wish to make an emphatic protest believing that the end aimed at cannot be accomplished by such a requirement. Therefore, be it
>
> Resolved, That an act modeled on the lines of the British Merchandise Marks Act, regarding the misbranding of merchandise, in our view, fully covers all practical necessities and would prove most effective. If necessary to indicate the source of supply, the registered owner of the ticket or brand under which the merchandise is sold should be considered the responsible source of supply.

To illustrate the absurdity of requiring the name of the manufacturer on textiles, the following is quoted from the Textile World Record:

> "Take for example what is a very moderate illustration, a cloth made of a mixture of worsted, silk and cotton. The wool for the worsted may have been scoured in mill 1, combed in mill 2, drawn in mill 3, spun in mill 4, and dyed in mill 5; the spun yarn may have been thrown in mill 6, dyed in mill 7, and twisted into a fancy thread in mill 8; the cotton for the cotton yarn may have been spun in mill 9, and dyed in mill 10; these three kinds of yarn worsted, silk and cotton, may have been brought together and woven into cloth in mill 11; and the cloth may have been finished in mill 12."

The Merchants' Association of New York held a conference on "pure textile" bills in their rooms on January 29, Edward D. Page being the presiding officer. Frank R. Chambers, of Rogers Peet & Co., stated that the Lindquist bill was impracticable as it required the proportions of the different ingredients in fabrics to be marked on the label. He illustrated this by referring to the impossibility of distinguishing shoddy and new wool when mixed together in wool goods. Mr. Chambers favored a law similar to the British Merchandise Marks Act as being more practicable and affording better protection to the purchaser of goods.

John P. Wood, president of the National Association of Wool Manufacturers, discussed the effect of the Lindquist and other "pure textile" bills on wool fabrics and called attention to the fact that cotton was not always an adulterant. He showed a raincoating fabric made of fine cotton yarn and worsted in which the cotton yarn was

the more expensive material. Mr. Wood favored a law similar to the British Merchandise Marks Act.

The only advocate of the bills was William J. Schepp of the National Cloak and Suit Company, New York, who said that his company already complied with the requirements of the bills.

It was decided to send the Committee on Commercial Law of the Merchants' Association to Washington to discuss the matter with members of the House and Senate.

The National Association of Clothiers has also taken a stand in opposition to legislation of the Lindquist, Palmer and Campbell types. At a meeting in New York on January 29, the board of directors adopted the following resolution, which makes it plain that, while the Association is unreservedly in favor of measures to prevent fraud and misrepresentation in the sale of textiles, it is opposed to the impracticable measures now pending at Washington:

Resolved, That the directors of the National Association of Clothiers declare themselves as being opposed to what is known as the "Fabric Adulteration Measures," introduced in the House of Representatives by Congressmen Lindquist, Palmer and Campbell, respectively, for the reason that they are so complicated in their requirements that in the opinion of the directors it would be impracticable to carry out their provisions, should they be enacted into laws, and that such a result would defeat the purpose for which the bills were apparently drawn, viz.: to give the consumer knowledge of the articles which he buys.

The directors do not by this action declare themselves as opposed to the principle underlying the bills, but to the way or method by which the principle is sought to be enacted into law by the bills in question.

Resolved, further, that the secretary notify all clothing markets and each Senator and Congressman at Washington of the action thus taken.

One of the recent meetings on the Lindquist, Campbell and Palmer bills given by the House Committee, was devoted mainly to the testimony of shoe manufacturers. They were followed by James A. Marr, representing A. & E. Henkels, lace manufacturers of Bridgeport, Conn., who was accompanied by A. E. Philips, manager of the Henkels' mills. Mr. Marr said:

I am holding in my hand now a piece of lace, which is absolutely current in our business; this is something sold as real linen.

Mr. Montague—Is the name of the man on that?

Mr. Marr—No; we took that off. We do not care to advertise him. I will show you the results of it to those who want to be honest. You will notice these large threads are cotton; they are mercerized; these thinner threads are linen. If you take hold of that cotton thread you can pull it apart quite easily; if you take hold of that linen thread you could not break it; it is too strong.

Mr. Marr—Now, I take that cotton and pull it out and you notice what happens. That cotton lace, the majority of it, you see all that piece where it is woven around, that is all cotton.

Mr. Montague—This say "real linen lace?"

Mr. Marr—Real linen lace.

Mr. Montague—As a matter of fact, that is falsely branded, because it is not real linen?

Mr. Marr—That is probably, how many per cent. of cotton would you say, Mr. Phillips?

Mr. Montague—I say 40 per cent. of cotton in that.

Mr. Marr—All right, then if you went into the market with pure linen—we put on our goods "pure linen". This man comes along and puts "pure linen" on and undersells us a little. We cannot compete with him.

Mr. Montague—It is false branding.

At this point Congressman Decker, of Missouri, called attention to the fact that the misrepresentation, not only of lace, but of all kinds of goods would be prevented by the enforcement of a law based on the principle of the British Merchandise Marks Act, and also stated that since studying the subject, he had become convinced of the difficulty of administering such bills as have been introduced:

Mr. Decker—Now, you are getting at something which, it seems to me, has got a good deal of meat in it. Instead of requiring a show man to go into details, for instance, instead of requiring him to say the counter is horn fiber and the inner sole is ground cork, if we would pass a law that said no man could sell any article and represent it to be one thing when it is another—

Mr. Marr—That is the English law.

Mr. Decker—Is that the English law?

Mr. Marr—I think it is; that is, they do not have to brand it, but if they put a brand on it they have got to brand it right.

Mr. Decker—Because, when I first started to think on this subject, it looked to me like it would be easy to make them brand everything and tell what was in it; that does not look so easy now because, if you say a thing is all leather—

Mr. Montague—And if it is not all leather it is not branded?

Mr. Decker—Or if you went into details you would have to make him tell what kind of leather it was, and how much Epsom salts there was in it, and whether it was rotten leather, and all that.

Mr. Marr told of the adulteration of lace:

Let me call your attention to another thing that has not been brought out. When the purchaser

buys his stuff he takes it home and begins wearing it. After wear the main thing about lace is beauty and, of course, utility. It has got to have both qualities. Now, when the purchaser begins to wear it the cotton wears faster than the linen, and only those who are discriminating purchasers purchase real linen laces. When the stuff proves unsatisfactory, the next time they go to purchase they will say, "Well it was unsatisfactory; if that is linen lace we do not want any more of it," and the result is the man who sells that has injured his own business as well as ours, and the result is chaos, and a scrambling for some new composition to fool the public again, and this is the way the thing goes on. Here is what happens when we go to sell our pure cotton laces. Here is what we run up against. There are laces with a certain quantity of cotton, and the rest of the weight to give it a substantial appearance is made up of sizing.

Mr. Decker interrupted with this question:

Let me ask you again. Do you think it would be going far enough to pass a law to prevent false branding? In other words, not require everything to be branded? There is danger in requiring a brand. For instance, you say "all leather." That tends to put a guaranty on a thing. It is not a guaranty, but it apparently gives it an endorsement; but do you suppose it would cure most evils, in your judgment, just to prevent the branding of a thing for something that it is not?

Mr. Marr—Yes; if you would follow that up and say also that the man who sold it could not misrepresent it.

Mr. Decker—We cannot go that far. You have to look to the State legislation for that.

Mr. Marr—Yes; I presume that is so, although if a person came into a State to a manufacturer, and the manufacturer knowing that it was interstate commerce, misrepresented it, why, then, I think, you could reach him.

Mr. Decker—The interstate business will reach most manufacturers, because they all ship interstate.

In conclusion Mr. Marr appealed for legislation of some kind:

As I understood from your chairman, general legislation is proposed covering all commodities, and we are here today to show you simply how it affects our industry and demoralizes and destroys the business and puts a premium on unfair business and encourages industries that are honest.

So, gentlemen, we ask you to give us some bill. I do not know whether it should be the English bill preventing a man from misbranding anything. I notice in your bills you require that everything be branded. It may be that will get the thing in a situation where it will require either too great uncertainty on the one hand, or too much of specificness on the other. There should certainly be a law preventing the misbranding of anything, any article, in interstate commerce.

Mr. Lafferty—Putting the false brand on it?

Mr. Marr—Yes; that would be a great step in advance. You can go into any store in the United States and ask for a linen collar. They will tell you, "This is a linen collar," but I appeared before the Committee on Ways and Means and all the manufacturers said: "We do not make such a thing as a linen collar." If you go in and ask a storekeeper, he will say yes: "This is an all-linen collar."

Mr. Montague—I was under the impression that blankets were made of wool, but I understand they are not.

In his statement before the Committee Congressman Campbell, who introduced the Campbell bill, explained the chief object of that measure:

Mr. Chairman and gentlemen of the committee, I introduced a bill in the Sixty-first Congress requiring manufacturers to place their names upon the products they produced. In the Sixty-second Congress I introduced a bill covering the subject, with an amendment to the old bill, to the effect that where it was impracticable to place the name of the maker on the article itself that the name might be placed upon the wrapper or the article containing it. In this, the Sixty-third Congress, I introduced a bill on April 17, which is H. R. 2970, requiring the name of the manufacturer upon the articles or upon the wrapper, as might in any particular case be most feasible.

On this point we would like to ask Mr. Campbell a question. There are many textile mills of which each carries on but one of the many operations required to convert raw stock into finished textiles. Take, for example, what is a very moderate illustration, a cloth made of a mixture of worsted, silk and cotton. The wool for the worsted may have been scoured in mill 1, combed in mill 2, drawn in mill 3, spun in mill 4, and dyed in mill 5; the silk yarn may have been thrown in mill 6, dyed in mill 7 and twisted into a fancy thread in mill 8; the cotton for the cotton yarn may have been spun in mill 9, and dyed in mill 10; these three kinds of yarn, worsted, silk and cotton may have been brought together and woven into cloth in mill 11; and the cloth finished in mill 12. When this fabric enters into interstate and foreign commerce, which one of the twelve mills will claim it under the Campbell bill? For they all had a part in its manufacture.

Congressman Campbell might insist on having the names of the twelve manufacturers placed on the tag, in which case keeping track of the names of the different manufacturers while the materials were in process of manufacture would be an interesting

proposition when applied to the products of both foreign and American mills.

The idea of protecting the purchasers of goods against misrepresentation, by means of a law requiring a ticket to be attached to each product, stating the manufacturer's name and the materials of which it is composed, is an alluring one to many well-meaning people. The more the proposition is studied, however, the plainer does it become that the plan is hopelessly impossible. This explains the rapidly increasing sentiment in opposition to the Lindquist, Murdock, Campbell and Palmer bills, and in favor of a law patterned after the British Merchandise Marks Act and adapted to conditions in the United States. This is the conclusion of the textile trade, as voiced by the National Wholesale Dry Goods Association. The examination of witnesses before the House Committee show plainly that it is rapidly becoming the conclusion of the committee itself. Even the witnesses who appeared in support of the bills of the impossible Lindquist type showed that the principle of the British act was what they really wanted.

Whenever the attention of the public is directed to some particular question, there are always a number of alert merchants ready to turn the situation to their personal advantage by advertising their wares in connection with the subject in which the public happens to be interested for the time being. In another part of this issue we call attention to an example of this business propensity in connection with so-called tariff mark-down sales. Another example is found in connection with the pending "pure textile" legislation. No sound objection can be raised to this method of increasing the power of advertising, providing it is properly done. Unfortunately, however, the merchant frequently becomes so absorbed in the effort to advertise his goods as to neglect taking precautions to prevent the public from being misled in regard to the question to which he has temporarily hitched his business enterprise. Such is the regrettable result, not only with the Underwood tariff and mark-down sales, but also with "pure textile" legislation and the advertising of "pure fabrics" by certain dealers in clothing. For example, a leading clothing house is now spreading broadcast a flaming announcement from which we take the following extracts:

(a) You all know about the "pure food law." This law says that if any person put an adulterant in a bottle of catsup or any article of food or anything dangerous in a bottle of medicine, he must tell you so on the label. The "pure food law" puts the guarantee of the government behind everything you eat. But the government does not guarantee what you wear. Anyone may sell a suit as all wool and put just as much cotton into it as they like. The government does not protect you in what you wear.

(b) And so . . . we have passed our own "pure fabric law," just as the government has the "pure food law." We say to anyone who buys a suit or coat or anything (of us): "You have a right to know just what you are buying, and when you deal with us you are going to know the whole truth in advance."

(c) We have our own chemist and textile expert employed every day in the year testing materials. Every business house is not large enough to employ regularly a chemist as we do.

(d) Let us tell you how we prove every material we use. When a woolen or part woolen material is selected to be used, a piece of the material is given to our chemist. He analyzes it and finds out whether it is all wool or part cotton. And then remember we tell you the full truth whether every material is all wool or part cotton. But more than this: Our expert tests every material for strength. He also exposes a piece of every material for 30 days to wind and sun and rain to see if it is fast color. This is the way every woolen or mixed wool and cotton material is tested.

(e) We tell you here the full truth about every material (sold by us). But remember this "pure fabric" law is confined to us. When you buy of us you know what you are buying.

(f) But you need to get such a law passed by the United States Government so that when you shop you will know what you are buying. You need a law that will compel everyone to tell the truth about every piece of material; and further, to compel everyone to sew a label on every garment showing just what the material is.

(g) How to Get a Pure Fabric Law. Congressmen are elected by the votes of the people. They are very sensitive to the opinion of the people. And so we urge you to write to your Congressman and to your United States Senators and urge them to pass a pure fabric law. If only every reader of ——— would write such letters to their Congressmen, a pure fabric law would be passed at the next session of Congress. So work for a "pure textile law." Write your Congressman and at the same time send your name and address for your free copy of our book. It tells you how to test materials yourself—how to find the value of what you buy.

(a) To begin with, the pure food law does not put the guarantee of the government behind everything we eat. The government mark on foodstuffs indicates that the pure food law has been complied with. The guarantee is there by a ruling of a government department. Only recently members of the House who took a prominent part in the pure food legislation of a few years ago, expressed their regret that by reason of an arbitrary ruling of a department official, the label on drugs and foodstuffs conveyed to the public a false idea of the extent to which the purity of such products was guaranteed by the government. Another misstatement in the advertisement is that "anyone may sell a suit as 'all wool' and put just as much cotton into it as they like." Selling cotton and wool mixed garments as "all wool" is a fraud, and the law gives the defrauded purchaser means for redress from the seller. Every merchant ought to know that.

(b) It is not true that the advertiser has "passed his own 'pure fabric law,' just as the government has the 'pure food law,'" for the simple reason that the regulations applied to foodstuffs cannot be applied to textiles. Neither can the advertiser tell his customers "the whole truth in advance" about the clothing purchased. Much of the truth about the materials in clothing cannot be determined by testing the goods. For example, the advertiser cannot tell his customers how much or how little shoddy is mixed with wool in the garments he sells to them.

(c) The advertiser has no better facilities for testing the materials he buys than are possessed by manufacturing clothiers generally.

(d) The tests of wool cloth for the presence of cotton, for strength and for fastness of color, are all part of the ordinary routine of clothing manufacturing establishments generally. The advertiser admits their ordinary character by offering to send on application a book that tells the reader "how to test material for himself".

(e) This practice of testing fabrics is not confined to the advertiser in question. It is the rule of the clothing industry. It consists in making the simple tests with which our readers are familiar. And after they are made the clothing manufacturer falls far short of possessing the knowledge necessary for telling "the full truth about every material" sold by him.

(f) Having floundered in this bog of misstatements and half truths, the advertiser rolls over and tells the deluded readers that "they need to get such a law passed by the United States Government, to compel everyone to sew a label on every garment showing just what the material is".

(g) Here we get some facts. None can deny that "Congressmen are elected by the votes of the people," or that "they are very sensitive to the opinion of the people". Here we find the sequence of legislative influences nearly complete. First we have the merchants more interested in selling their goods than in discovering and telling the truth about the technical conditions involved in their manufacture. Having filled the prospective buyers (the public) with misinformation from his own misinformed and prejudiced mind, the merchant proceeds to give directions as to how the misinformation he has imparted can be made to do the most harm. Congressmen want to be reelected and consequently "are very sensitive to the opinion of the people". So the merchant tells the people he has deceived, "to write to their Congressmen and Senators and urge them to pass a pure fabric law". If only enough such letters are written, he tells them, we will have a "pure fabric law" next session.

Such is the way in which public opinion is moulded and politicians in Congress are led to favor half-baked legislation such as the Lindquist, Palmer, Campbell, Murdock, Myers and other pure textile bills.

—:—

Of the 28,801,612 pounds of linen yarn imported into the United Kingdom in 1910, 11,130,745 pounds entered at the Irish port of Belfast, 11,260,918 pounds at the Scottish port of Leith, and 3,984,144 pounds at Goole, the small remainder coming in at other ports.

THE SOUTHERN NEW ENGLAND TEXTILE CLUB

The regular monthly meeting of the Southern New England Textile Club was held at the Hotel Bancroft, Worcester, Mass., on January 17. An unusually large attendance, over 400 members and guests coming from all parts of New England being present. Many of the members took this occasion to visit many manufacturing plants in the city, among which were the Crompton & Knowles Loom Works and the Graton & Knight Mfg. Co., where they were royally received.

The doors of the banquet hall were opened about three o'clock, when 395 guests took their places. The guests were entertained during the dinner by the Worcester Polytechnic Institute orchestra, Miss Hazel Childs, character singer, and the humorist, S. Nichols. An exceedingly interesting part of the program were the modern and eastern dances executed on a table, which all thought were performed by a young lady, until the wig was removed and "she" was found to be Charles Pettess.

After the dinner the formal meeting of the club was called to order by President Henry C. Dexter, who paid a glowing tribute to the Worcester committee and citizens.

John L. Burton of New Bedford then offered the following resolution:

Resolved, that the president of this club be authorized to appoint three representatives to act with three other representatives, representing the National Association of Wool Manufacturers, National Association of Cotton Manufacturers, and the American Cotton Manufacturers' Association, who shall constitute a committee for the purpose of suppressing and prosecuting bribery and improper trade practices in the sale of mill supplies.

Hon. Robert M. Washburn spoke at some length on the railroad situation, in which he read part of a letter from Charles S. Mellen, late of the N. Y., N. H. & H. R. R.

The Worcester meeting proved to be the largest and most enthusiastic ever held by this club, the committee of arrangements being as follows:

Jerome Rutledge, Anco Mills; George L. Brownell; Robert M. Meacham, Central Supply Co.; Thomas T. Booth, Earl E. Howard, Charles F. Hutchins, Gay D. Thayer, Irving G. Very, Crompton & Knowles Loom Works; Charles F. Marble, Curtis & Marble Machine Co.; Herbert S. Ramsdell, Brigham M. Scott, Duncan & Goodell Co.; David B. Rice, Eastern Supply Co.; Fred W. Steele, Fisher Mfg. Co., chairman; W. A. Place, W. V. Spaulding, F. H. Willard, Graton & Knight Mfg. Co.; J. F. Reardon, Grosvenordale Co.; Herbert Midgley, Howard Bros. Mfg. Co.; J. Russell Marble, J. Russell Marble & Co.; Hiram L. Reynolds, Saunders Cotton Mills; John C. Stewart, Stewart Boiler Works; J. F. Warren, J. F. & W. H. Warren Co.; Walter B. Hall, Warren Cotton Mills; John E. Washburn, Washburn & Garfield Mfg. Co.; Walter C. Watson, L. S. Watson Mfg. Co.; Charles R. Simmons, Clarence H. Streeter, Whitaker Reed Co.; James A. Cooper, Albert K. Pratt, Edwin E. Rooney, Kent Swift, Whitin Machine Works; George M. Orr, Worcester Bleach & Dye Works, Arthur L. Remington, Wor. Warp Compressing Mach. Co.

The general feeling seemed to be that the next meeting would probably be in Boston.

THE NATIONAL WOOL GROWERS' ASSOCIATION

The fiftieth annual convention of the National Wool Growers' Association was held at Salt Lake City on January 17. President F. J. Hagenbarth delivered an address in which he denounced the sectional character of the Underwood tariff law:

For the third time in a century of national progress, the flock master is facing a period of free and unlimited competition in the production of wool against the whole world. He is reduced to the necessity of striving on unequal terms with the half-clad savage of South Africa and Asia, the peon of South America, and the skilled producer of New Zealand and Australia, whose flocks are shorn under the fostering care of their respective governments. . . .

I cannot leave the subject without calling your attention to the fact that an analysis of the tariff law of Oct. 3, 1913, discloses the fact that it is decisively an alignment of the East and South against the West. This statement cannot be better proven than to state that 80 per cent. of the products of New Jersey are on the dutiable list, whereas but 9 per cent. of the products of Arizona and 12 per cent. of the products of Nevada are so favored. . . .

As a further criticism of the tariff act of Oct. 3, 1913, the statement can conservatively be made that, after all, it was written hastily and with improper preparation and information. The labors of Messrs. Underwood and Clark and their associates in the preparation of a consistent tariff act, which covered a year or more of unremitting toil, were hurriedly dispensed with when Mr. Bryan and Mr. Wilson came into power and wrote "free wool, free sugar and free cattle" in place of the paragraphs that had been prepared theretofore by Mr. Underwood. These changes were arbitrarily made and without rhyme or reason as per-

taining to the balance of the bill. Under the new law the grower of merino wool will be seriously hurt, and most likely eliminated from the ranks of American industry. The mutton producer may be able to survive, but even this is problematical at this time.

This feeling of resentment because of free wool was voiced in even stronger terms by former Governor F. R. Gooding, of Idaho, and Dr. S. W. McClure, secretary of the association. Gov. Gooding said in part:

William Jennings Bryan once made the statement that there were only 22,000 men in the sheep industry, including shearers, herders, flockmasters and all. He is either ignorant of the facts or is willfully helping to destroy the industry. There are over 600,000 men in the industry alone who own sheep.

There was one man in the Democratic party (Underwood) who wanted a 15 per cent. tariff on wool. But President Wilson went before Congress personally and demanded that wool be placed on the free list. And the sugar interests were given three years of grace. Yet the wool industry turns $3 back to the farmer to every one of the sugar industry. The sugar industry needs no more protection than the wool industry. I am inclined to believe from his actions, William Jennings Bryan was back of the whole thing. I can't discuss the matter here with the feeling that I'd like to.

The election of officers resulted as follows:

Frank J. Hagenbarth, of Spencer, Ida., president.
A. J. Knollin, of Chicago, Ill., eastern vice-president.
M. I. Powers, of Flagstaff, Ariz., western vice-president.
Dr. S. W. McClure, of Salt Lake, secretary.
F. D. Miracle, of Helena, Mont., treasurer.

The following resolutions relating to the tariff, a "pure fabric" law, and the marketing of farm and range products were adopted:

Resolved, That we, the National Woolgrowers' Association, protest against the present tariff act as being unfair and sectional, as it affects our industry, and we hereby pledge this association to use all honorable means within its power to have this law changed so that it will provide equal justice to all sections of this country, including both producers and consumers, whether said law be framed on a revenue or a protective basis.

Resolved, That we favor the passage of a pure fabric law, with requirements similar to those of the pure food law.

Resolved, That the government take necessary steps to bring about a system to prevent waste and better facilities for distribution and marketing of the products from the farm and range so as to help reduce the high cost of living.

THE WOOL GOODS MARKET

New York, Jan. 31, 1914.

Considerable interest, regarding the woolen situation, has been shown during the opening month of the new year. The great centering point has been the serge business, which has created considerable excitement in the woolen district.

About every mill that could possibly make a serge has samples on the market, with the result that there are more serge lines than ever before. Many goods have been sold, at low prices, probably so low as not to afford any profit for the manufacturer and it is an open question as to whether there will prove to be a small loss for some mills. The dread of competition from abroad caused the making of very low prices for domestic goods, to make sure of securing the necessary business to keep the mills under full production for the season.

The greatest competition has come from domestic mills. The foreign mills do not seem to be in the race as far as the serge business is concerned. During December there was a large sale of low priced serges by foreign producers, but their highest grade was below the finer domestic grades sold this month.

The leading makes opened 10 to 20 per cent. lower than a year ago at which a good business was done, by a number of mills, but last week a prominent manufacturer came out with a cut of five cents a yard on six or eight grades. This has had a tendency to unsettle the minds of buyers as to the stability of prices and it remains to be seen what the result will be.

There has been some complaint of low grade imported serges becoming hard or "boardy" after being sponged. This, it is understood, is on account of the goods being dyed in the grease. There may not be many such complaints, but there are some, and such goods will prove very unsatisfactory to the wearer and doubtless will cause trouble for the clothing manufacturer.

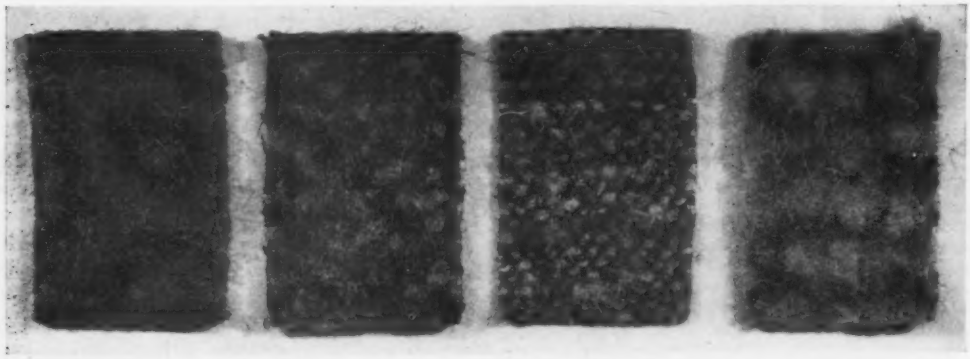
Some are predicting an advance in serge prices after the initial business is booked and it is quite likely it may come sooner, the slight hardening of prices for wool is a

hint of what may have to come in the goods market.

Business on low priced three-quarter goods, which were opened in December, has progressed further than on the better grades as they were the first to be opened. There are a good many complaints of sample orders being small in size and few in number. As usual the leading makes, in many instances, have booked a satisfactory business, considering the unsettled feeling regarding business matters at the present time.

as the samples, and not as good colors. This has caused dissatisfaction with the cap and hat manufacturers. They say it would take so long to remake the goods and get them here that it is out of the question. They either have to accept the delivery or do without the styles, which are wanted.

Cloakings are being sold by both foreign and domestic sellers, but mostly in small or sample piece orders as is customary on fancy goods. Some buyers, probably a large percentage of them, refuse to order foreign



NOS 1, 2, 3, 12. SAMPLES OF IMPORTED CAP CLOTHS AND CLOAKINGS

It appears that the foreign sellers are not getting much, if any, business on these low grade goods, there being so little wool in them that the tariff did not affect the prices.

The sale of overcoatings has been adversely affected by the mild, open weather. Clothiers report quite large stocks of overcoats unsold, consequently they are not encouraged to place many, or good sized orders, for new goods. On the whole the business has been quite unsatisfactory on most lines of overcoatings.

The increasing popular demand for cloth hats and caps is making considerable business for the carded woolen fabrics. Both foreign and domestic mills have samples on the market and all are doing more or less business in taking small initial orders. The styles are quite pronounced and in fancy colors. Some foreign makes are having some trouble on account of the goods, now being delivered, not being the same shade

goods where styles, fabrics and prices are satisfactory. This is on account of their having to order a quantity of a fancy style that may not sell in cloaks. They say that if they order only a piece of a style that they cannot get more on duplicate orders, on short notice. Several have told the salesmen that if they would have the goods copied in domestic mills, they would place their orders for them.

Dress goods mills have considerable work ahead on spring goods to close up the present season, which has been fairly satisfactory considering the tariff and currency agitation which has tended to restrict business. Many new lines of dress goods for next fall and winter were opened during the month with varying success, most of them doing a moderate business with many small orders. The indications are that the lines with merit will be well distributed. The event of the last week of the month has been the opening

by the American Woolen Co. of their lines of Vigoureux mixture ladies' suitings with prices ranging from 27 1/2 to 32 1/2 cents per yard below last year's prices, being reductions averaging about 20 per cent. They are very creditable goods and it is understood around the trade that they have sold well, both in quantity and sample piece orders. They are being well distributed and their success seems to be assured.

It is the general opinion here that the woolen business is being secured by domestic mills by the sacrifice of profits for most mills. This cannot continue indefinitely. The question to be considered is as to what percentage of foreign goods will come in after our manufacturers find they must get more for goods to earn dividends. It will be a serious matter if we have to wear a large percentage of foreign made goods at the expense of our own help.

It is generally considered that the attempt to sell our woolens in foreign markets will not be successful. If it should be it would be at unprofitable prices, in most cases. A few mills may sell a few novelties there.

The importers have made extensive preparations on all kinds of fabrics and it is stated that they are disappointed with the results up to the present time. Inability to make fairly prompt deliveries, especially on fancy styles, is a determining factor as to where the business will be placed.

The police force of the city are made happy by reductions of 70 cents a yard on cloth imported for their winter coats or blouses, It is said it will make a saving of $2.50 on each coat.

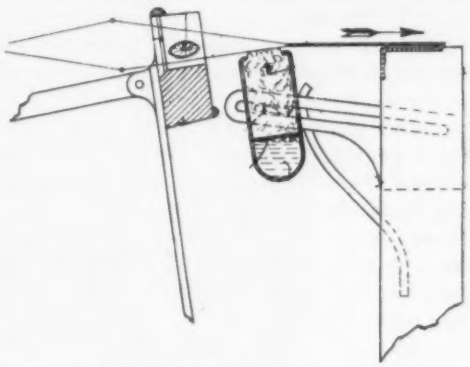
Woolens to the value of five and a half million dollars were withdrawn from bonded warehouse early this month; they consisted largely of men's wear and dress goods, with some cloakings, serges and carpets. Many of these goods could not have been imported under the old tariff, consequently it can be seen that our mills are losing some business that they would have secured last year.

Following is a list of samples of imported wool goods which our correspondent sent with his report of the wool goods market, They can be seen at our Boston office:

1. Cap cloth, 16 ounces, 54 in., $1.25 regular.
2. Cap cloth, 26 ounces, 55 in., $1.20 regular.
3. Cap cloth, 14 ounces, 55 in., $1.10 regular.
4. Cap cloth, 17 ounces, 55 in., $1 regular.
5. Suiting, 14 ounces, 56 in., $2.09.
6. Cloakings, 22 ounces, 54 in., $1.16 net, 60 days.
7. Overcoating, 28 ounces, 56 in., $1.13 net, 60 days.
8. Overcoating, 27 ounces, 54 in., some cotton present, 62 cents net, 60 days.
9. Tweed, 15 ounces, 56 in., $1.02 net, 60 days.
10. Chinchilla, 22 ounces, 54 in., 97 cents net, 60 days.
11. Kersey overcoatings, 32 ounces, 54 in., 92 cents net.
12. Cloaking, 20 ounces, 56 in., $1.30 regular.

A PROCESS FOR TREATING FABRICS DURING WEAVING

In our October issue we published a description of a German process for treating fabrics during the weaving in order to give an improved finish. This process has recently been patented in the United States and the following description is given by the inventor: During the weaving of fabrics the fibers become loose from the yarn, even when they have been first connected together by some preparation or are woven by the wet process. In the case of the fibers of the warp yarn, this takes place owing to the strong mutual friction during the formation of the shed and to the reciprocation of the reed. Some of the loosened fibers while on the loom are bent, crushed and compressed into the woven fabric, owing to the reed striking against them during the beating up of the weft, and owing to the plaiting of the threads situated above them.



THE APPARATUS USED FOR THE TREATMENT OF FABRICS DURING MERCERIZING

The fibers which are still projecting from the surface of the fabric are removed by shearing, singeing and cleaning machines in order to make the fabric suitable for various purposes. In this way the fabric loses not only a large number of fibers which would otherwise offer great resistance to tearing, but the weaving in of fibers which tend to become loose, and the violent removal of those which project, results in serious drawbacks. During shearing, the very sharp cutters which work at high speed not only remove the projecting fibers but also cut little knots and threads off. This is not noticeable at first and shows unfavorable results only when the fabric is tested as to its resistance to tearing as a completed length. In the singeing process it is the heat, generally acting suddenly on the fabric, which makes all the fibers brittle, more particularly the single cell cotton fibers. A further important drawback is that the fibers which have been woven in a curved and crushed state, remain in the fabric with a spreading force which has not been weakened in any way.

When the woven material is treated later the fibers become loose and project from the fabric as the spreading forces of the fibers and the adhering forces of the preparation act in opposition to each other. Even if the curved fibers and hairs are held during drying by mechanical pressure, which, as is well known in practice, is carried out in different ways in various fabrics, they are merely held fast but not weakened. They will also in this case gradually become loose and detached from their bed owing to the irregular movement of the fabric, changeable temperature and varying strains set upon the fabric with disadvantageous results.

The apparatus shown in the illustration is intended to avoid these drawbacks. The warp threads are rubbed with a moistened pad immediately before being interwoven, in such manner that all fibers are caused to adhere straightened to their threads, in which position they are held by the threads when woven together. It is of especial importance that the laying down of the fibers takes place exactly at the place where, and at the moment when no further fiber loosening forces are brought to operate on the threads. An arm is provided with a guide slot formed in it in which a projecting rib formed on a long tank or reservoir is free to slide. The tank carries the body serving to lay down the fibers on the threads, which stands out a little distance from the upper opening of the tank and stretches over the whole width of the loom

THE LINEN INDUSTRY OF JAPAN

BY CHAS. RICHARDS DODGE

It is not generally known that Japan has an up-to-date flax culture and linen industry, and is able to turn out products that could compete on even terms with the best productions of Europe. And as there is only one big concern it comes pretty close to being a monopoly—that is, a trust.

The late Mr. Yoshida, who learned the linen industry in Lille, France, Baron Shibusawa and Mr. Tanaka of Tokio, with their friends, made up the personnel of the original company, which was capitalized at 800,000 yen, the government giving encouragement to the enterprise for five years. At the outset only one hundred acres of flax was cultivated, and some small mills erected. The original company finally amalgamated with several hemp concerns, and the present company, styled The Teikoku Seima Kaisha, Ltd. (The Imperial Flax Company) of Tokio —is capitalized at 6,400,000 yen ($3,200,000). Mr. Yasuda, one of the largest bankers in Tokio, is the president of the company, which has 16 scutch mills and 5 spinning and weaving factories, and gives employment at the present time to 4,500 workpeople. The company is about to erect and equip 6 other factories. Suzuma Suzuki, manager for the company, informs me that the flax cultural industry of Japan is only "25 years young," the first efforts in the enterprise having been under the direction of a Belgian flax farmer. Ten years later the company sent a man to Belgium to learn of any improvements that might have been made in the industry, and about six years ago Mr. Suzuki spent a year in Europe making a special study of the latest methods of growing the flax, preparing the fiber, and manufacturing it.

The flax culture of Japan is confined to Hakkaida, with an area of over 25,000 acres, this average having been maintained for the past eight years. This supply represents about one-half of the material manufactured by the company, the other half being supplied by China grass. The flax is grown by farmers, under contract, the company paying prices comparing in yield per acre with the value of other crops, such as wheat, etc. Naturally the culture is European, and when the flax straw has been pulled, Fig. 1, the after preparation is, to all intents and purposes, the same one sees at Courtrai, Belgium, where the best flax in the world is produced.

Particular attention is given to the retting, which is carried on in running water after the most approved Courtrai methods. Large bundles of the straw are made up of "beets" laid end for end to ensure evenness in the size and shape of the bundle—usually 8 to 10 inches in diameter. These bundles or "hedges," placed on end, are packed into loose crates holding a ton or more of straw, the crates having been lined with burlap to

FIG. 1. PULLING FLAX IN JAPAN

FIG. 2. RETTING FLAX IN JAPAN

act as a strainer against any impurities in the water that might injure the flax. After filling the crates they are put into the stream, anchored, and weighted with stones and sunk to the top rail. The illustration of the floating crates, Fig. 2, is so like the pictures in the writer's possession which were made along the river Lys, in Courtrai, that it might almost be taken for a Belgian scene.

The flax remains in the water from five days to two weeks, and when taken out to dry the bundles are broken up and the "beets," fashioned into little bell-shaped tents, are set up in ranks over the fields. When thoroughly dry the flax is again made up in bundles for a second immersion. On the shore, in the picture, Fig. 2, two men may be seen with huge bunches of flax straw on their backs—which, however, is very un-European—though a common mode of transportation in Japan is by means of very small carts drawn by little horses. Such carts, piled high with flax straw, are very picturesque.

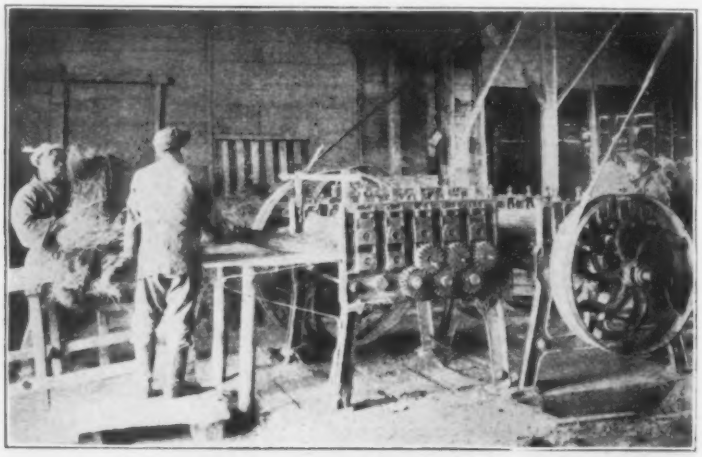


FIG. 3 BREAKING FLAX

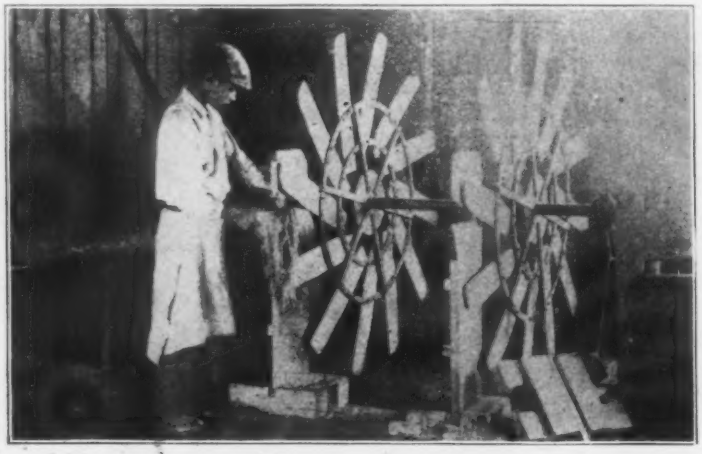


FIG. 4. JAPANESE SCUTCH WHEEL

Fig. 3 illustrates the breaking of the retted and dried straw, the machines in use

being similar to those one sees in Europe. The form of scutch-wheel used in Japan, Fig. 4, differs only slightly from the Belgian wheel, boys being the operatives. The hackeling is done by hand, Fig. 5, giving a good idea of the interior of a Japanese hackeling shed. The factories need not be referred to further than to state that they are fully equipped with the best of modern spinning machinery and looms.

Regarding the output of the Osaka mills, Mr. Suzuki says: "We manufacture many kinds of goods, from 20s dry spun to 100s wet spun, in heavy sail cloth, duck, linen cloths, shirtings, table linen, napkins, towelling, sewing thread, shoe thread, netting twines, and other fine twines, hose-pipe, etc., all of which find a market at home." The main factories are at Dembo, Osaka. I have not seen these products, but specimens of Japan flax examined at the expositions have shown a product of superior strength—a fine, well grown, carefully prepared fiber, not unlike in general appearance and color the best Irish flax—that is to say, while as fine and soft as much of the Courtrai flax, it is less creamy in color.

FIG. 5. INTERIOR OF A JAPANESE HACKLING SHED

The medallion in an Oriental rug is said to symbolize space generally; a lozenge or square in the medallion, the earth; and the branches protruding from it, mountains and rivers or land and sky.

ENGLISH OVERCOATINGS AND OVERCOATS

By Our Regular Correspondent

The fashion for gabardine rainproofs, more or less suitable for wear at any time of the year, have made a difference to the trade in heavy overcoatings in England. The season for selling heavy coats is short and unless cold weather is met before Christmas the clothier finds his stock unsalable before the next fall. A trade preference is thus set up for medium weights and this will be found reflected in the set of samples sent to represent the class of goods bought by a large wholesale clothier doing a cheap line of trade.

The series begins with goods at the low price of 24 cents with two cloths, 6,409 and 6,410, of Leeds' make. The warp is spun cotton and the filling a coarse shoddy. The weave is twill in one case and herringbone in the other and the fabrics represent the best value obtainable in mixture cheviot at their price.

Better articles of the same make are shown in 6,418, 6,419, 6,423, which cost 28 cents. The prices given are for 54-inch width throughout.

The fabric, 6,432, containing hardly anything but cotton, has a woolen-spun gray cotton warp around which is twisted a single black cotton thread giving a twist effect and

of course improving the strength. The filling is a coarse low woolen of darker shade. The cost is 30 cents and the goods are made at Elland. Next in order of price is 6,434 at 32 cents, a Batley-made blue nap; a type of cloth in which there has been a large sale both for men's and women's coats. The nap has a cotton warp, well covered and it is a warmer and woollier article than the cheaper goods previously detailed. However, it is at the next price of 35 cents that the most convincing winter value is given, and the samples, 6,449, 6,450, 6,457, which are also of Batley origin, will repay attention. They are rag wool without cotton. The heavier and warmer Leeds cloth 6,468 at 38 cents has a spun cotton warp and a stocking wool weft.

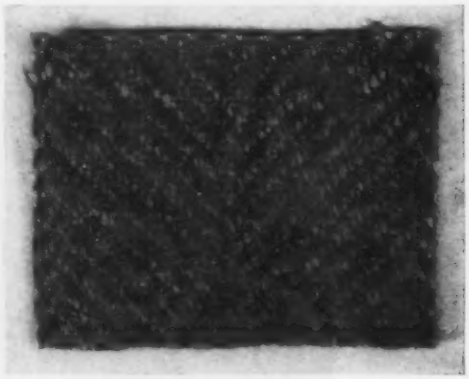
Samples 6,470 and 6,477 at 39 cents are by the same maker as 6,449. A third fabric from the same mill is shown in 6,483, 6,486, 6,489 at 43 cents and a fourth one in 6,501, 6,507, 6,508 at 48 cents. A rather softer handling range, 6,498, 6,499, 6,500 by a Dewsbury maker is sold at the same price as the last mentioned. A superior grade of fleecy goods of the same make is shown in 6,517 and 6,519 at 54 cents. The numbers 6,521, 6,522, 6,523 are wool naps costing 60 cents, a price which permits them to be put into $7.50 coats. This clothier's limit is the usual 72 cents at which there is a Leeds cloth, samples 6,533 and 6,535, of Saxony character, the warp of which has been supported by a cotton carrier thread; and a wool witney nap, also with a cotton support to the warp thread.

Some inquiries made as to the cost of these goods in the garment form have solicited some of the difficulties in the way of a precise statement. Part of the cost is made up in tailoring and trimming and prices vary with the style. The single-breasted plain coat without raglan sleeves, gauntlets, cuffs, patch pockets or other extras has been taken as the basis of a table which strikes the average selling prices of garments made from cloth costing as follows:

S. B. Overcoats

Cloth	Wholesale	Retail
s d	s d	s d s d
1/0 (24c.)	10/0 ($2.40)	13/11 to 14/11 ($3.34-$3.58)
1/8 (40c.)	12/6 ($3.00)	17/11 to 18/11 ($4.20-$4.44)
2/0 (48c.)	15/6 ($3.72)	22/6 to 25/00 ($5.40-$6.00)
2/6 (60c.)	17/6 ($4.20)	27/6 to 30/00 ($6.60-$7.20)

It will be understood that retail profits vary widely with the district, the season and the class of goods. There is the evidence of one maker-up that within the limits of an hour's cab-ride in London coats of his making can be found in shop windows priced at all figures between a minimum of $3.60 and a maximum of $12; the coats being in all



STYLE 6432

respects the same in cut and fabric. The retail profits shown in the statement are for a quick cash trade in working-class districts.

We have analyzed a number of the samples to which reference is made by our correspondent, and give the results below. With the exception of 6,432, the styles are too dark to be illustrated, but they can all be seen at our Boston office:

6410. Weight, 16.4 ozs., 54 in. Warp, 38 ends, single 13s cotton. Filling, 28 picks, 1 1/8 runs.

6418. Weight, 18.8 ozs., 54 in. Warp, 38 ends, .9 runs. Filling, 28 picks, .9 runs.

6449. Weight, 19.3 ozs., 54 in. Warp, 22 ends, 1.1 runs. Filling, 19 picks, 1.1 run.

6468. Weight, 21 ozs., 54 in. Warp, 40 ends, single 19s cotton. Filling, 39 picks, 1.1 runs.

6483. Weight, 22.4 ozs., 54 in. Warp, 23 ends, 1.1 runs. Filling, 22 picks, 1.1 runs.

6498. Weight, 20.7 ozs., 54 in. Warp, 26 ends, 1.2 runs. Filling, 22 picks, 1.3 runs.

6501. Weight, 22 ozs., 54 in. Warp, 23 ends, 1.2 runs. Filling, 24 picks, 1.1 runs.

6517. Weight, 21.1 ozs., 54 in. Warp, 25 ends, 1.2 runs. Filling, 23 picks, 1.3 runs.

6251. Weight, 21.9 ozs., 54 in. Warp, 27 ends, 1.3 runs. Filling, 24 picks, 1.2 runs.

6532. Weight, 19.1 ozs., 54 in. Warp, 23 ends, 2.28 runs. Filling, 24 picks, 1.2 runs.

6533. Weight, 25.4 ozs., 54 in. Warp, 51 ends, 2.1 runs. Filling, 22 picks, .89 runs, fine cotton wrapped.

Correspondence and Notes

UPON TEXTILE TOPICS AT HOME AND ABROAD

THE GAUDONNET PROCESS OF WEAVING VELVET

BY BOHAIN.

Translated from the French by the Editor of the Textile World Record

This process of manufacturing warp pile velvets, invented by M. Gaudonnet, was patented in France (380,118, July 25, 1907). Since that time various improvements have made the invention thoroughly practical. Although antedating the Girard and Clemencon patents, which were described in the October, 1913, issue of this magazine, the Gaudonnet methods presents the same characteristics. The raising of the pile is effected by aid of lost picks passing over a fixed warp. Fig. 1 illustrates the arrangement adopted. The fixed warp, 1, of either brass or steel wire, passes around a separate beam

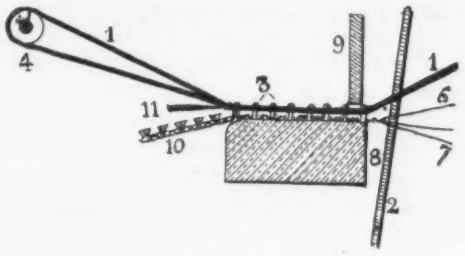


FIG. 1

is operated by either one or two shafts exactly as with the process of the "Societe francaise du Nouveau Velours," the number of shafts depending upon whether the fabric is for velvet or plush. The pile warp, 6, and the ground warp, 7, are each wound on a separate beam, the weaving being effected by either a dobby or jacquard motion.

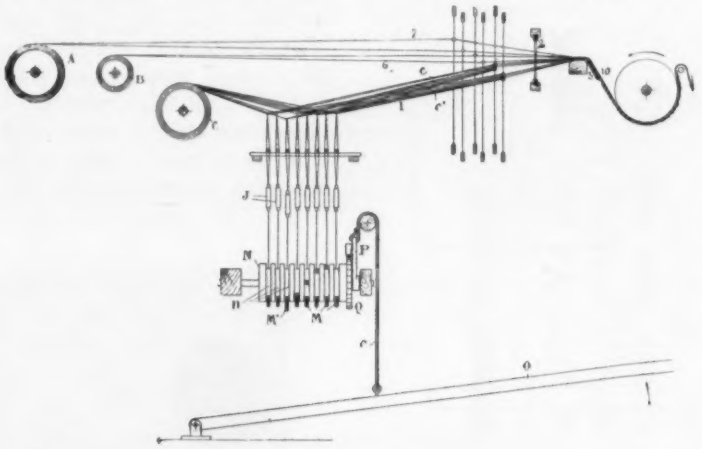


FIG. 2

and does not unwind. After passing through the reed this wire warp rests on a fixed table, 8, in front of the breast beam, and passes over the roll, 4, to the beam, making an endless warp. The adjustable plate, 9, which holds the wire in place, enables the height of the pile to be regulated as desired. The tension on the wire warp can be regulated by adjusting the roll, 4. The wire warp

As the weave of the fabric produced is the same as with the Girard system, it is not necessary to describe it here. The cloth, 10, rests on the table, 8, the pile being formed by the metal warp, 1, and a series of lost picks, 3, which are used instead of wire rods. This arrangement is suited only for cut velvet. If looped velvet is desired the piece, 11, is removed, and the picks, 3, are cut at the

ends next to the selvage and drawn out by the end. This is done at the loom, which makes it necessary for the weaver to pay close attention to the work.

All the combinations possible with the Girard system can be made with this one, in-

FIG. 3

cluding a combination of cut and looped velvet and patterns having the pile of different heights. At the start M. Gaudonnet, like Vanoutryre, the original inventor of the lost pick system, encountered great difficulty in operating the fixed warp, 1. It required considerable effort to draw the fabric over the warp, and there was in addition the risk of tearing it. By the improvement of May 17, 1910, Gaudonnet removed this difficulty.

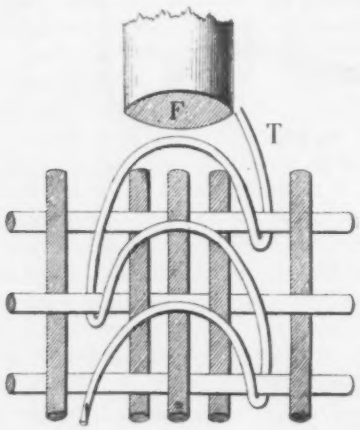


FIG. 4

Fig. 2 shows the principle of the new arrangement applied to a hand loom, the cloth being woven face down. The fixed warp threads, 1, are held under a very slight tension by the weights, J, to which are attached vibrators, M, perpendicular to the warp. The roll, N, in which are eccentric grooves, n, move the vibrators, M, lowering gradually the fixed warp, 1, group by group. In this way the risk of breaking the warp is reduced. The roll, N, is moved slowly by means of the ratchet, P, as shown in the illustration. This device is used in a number of mills at Lyons.

Several patents have been issued for improvements in this method of weaving,

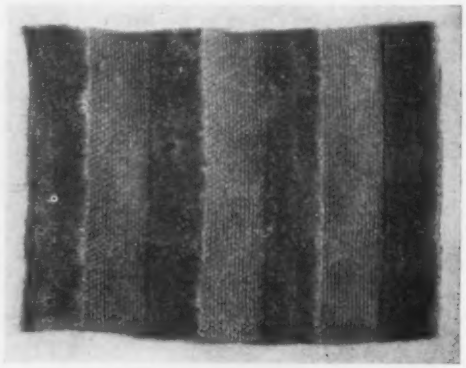


FIG 5

among them the Rodier (French patent 453,849, Jan. 31, 1913), and A. Guichard (French patent 460,922, April 29, 1913), these being attempts to imitate Gaudonnet.

The Gaudonnet process is open to the objections already mentioned in connection with the process of the "Societe francaise du Nouveau Velours," and it is unnecessary now to discuss them in detail. Gaudonnet,

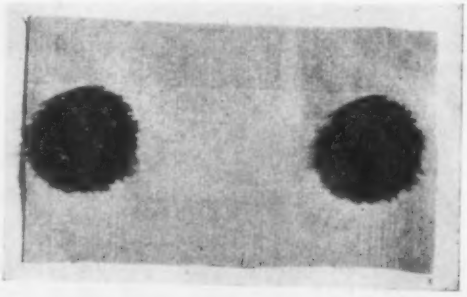


FIG 6

who is an imitator, has sought to dispense with the lost picks which cause an appreciable waste. Fig. 3 illustrates this method. The velvet is woven face down and the pile warp, b, is drawn by a leno motion over the wire warp, making a loop first to the right

and then one to the left of the fixed warp, c. The height of the pile is regulated by the size of the wire warp. This leno motion has also been adopted by Girard and Clem-

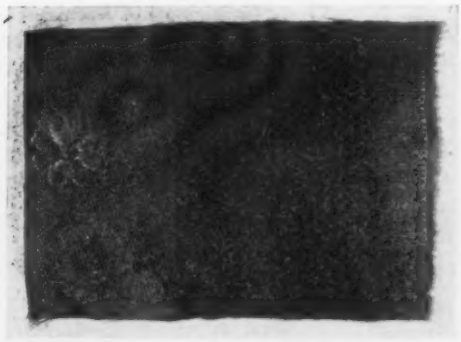


FIG. 7. SAMPLE OF VELVET MADE BY THE GAUDONNET PROCESS

encon for the "Societe francaise du Nouveau Velours." A large number of patents have been issued both in France and other countries for this process of weaving. Fig. 4 is an illustration of the first patent issued to M. Prudhon Francois, of St. Etienne, on September 12, 1838, over 75 years ago. This is another indication that there is nothing new under the sun. Gaudonnet in seeking to avoid his competitors has returned to a beaten path. I am sending a number of samples of cloths made by the Gaudonnet process. Some of these samples are shown at Figs. 5, 6 and 7. [Several plain fabrics which cannot be illustrated to advantage can be seen at our Boston office.—Ed.]

THE MANUFACTURE OF ELASTIC FABRICS

BY SAMUEL BROWN

(Continued from January.)

A very attractive design for medium and fine grade elastic suspender webs is obtained by the use of face warp threads so arranged that point draw effects intersect with the ground without interfering with the body weave, no additional figure warps being needed. Fig. 62 is a draft for a weave of this kind, extending 20 out of 24 body cords. Fig. 63 is the chain draft. A web 1 3/8 inches wide is made as follows:

Edge, 25 threads	2/40s
Binder, 25 threads	2/40s
Face, 96 threads	2/40s
Gut, 24 threads	2/20s
Back, 48 threads	2/2s
Rubber, 26 threads	36s
Reed, 18 dents.	
Filling	2/20s
Picks, 50 per inch.	

The web is shown at Fig. 64. The point draw covers 10 harness, and the ground, 6, so that it may be made within the limits of a fancy head chain loom. A large variety of similar weaves can be made in looms of a limited capacity. With a jacquard loom the field of such design is practically unlimited.

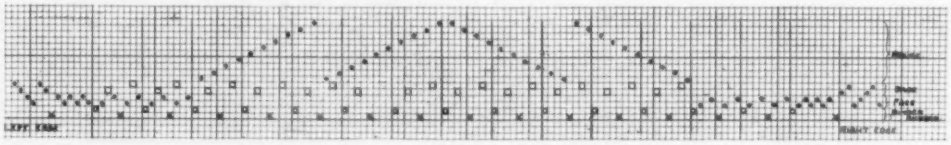


FIG. 62

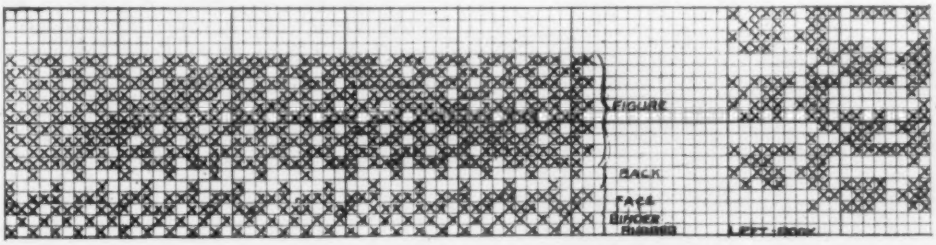


FIG. 63

The kind of elaboration formerly used on double cloth suspender web is the center face frill. Such a frill may be applied to either plain or twill goods, and also in conjunction with fancy warp effects. The frill being non-elastic is adapted for sharp center stripe

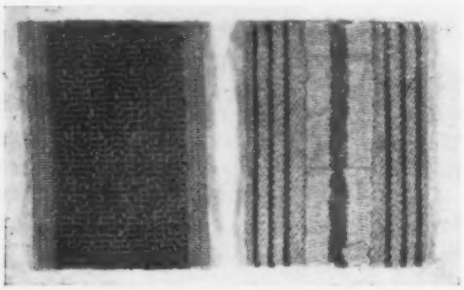


FIG 64 FIG. 66

effects in contrast to those applicable to the elastic ground on which it rests. The main body of the goods is drawn in the harness in two distinct sections, divided at the center of the web, as in the frill. The filling is made to alternate through the body and frill sections as shown in Fig. 65. Two picks are in the ground to one pick in the frill. This necessitates corresponding regulation in the take up of the goods. Fig. 66 shows a twill ground with a center frill; Fig. 67 is the harness draft; Fig. 68, the chain draft. The center frill may be arranged to appear at intervals on the face of the web instead of

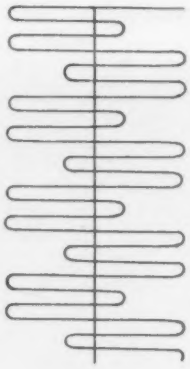


FIG. 65

continuously. This gives it a very different appearance to the web shown at Fig. 69. Fig. 70 shows a plain ground with frill, and a warp figure on the side sections. Fig. 71 is the draft of the ground and frill, omitting the warp figure; Fig. 72 is the chain draft.

The narrow frill edge is sometimes used

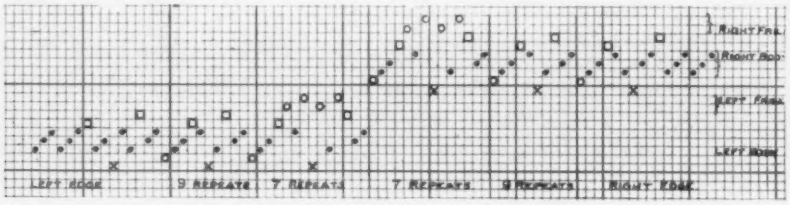


FIG. 67

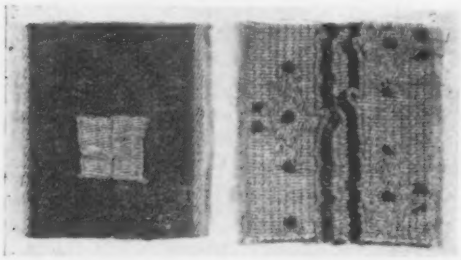


FIG. 69 FIG. 70

in double cloth webs as a substitute for the round edge. The frill edge is a small section of singe non-elastic cloth of a given width, carried out beyond the body of the double cloth, and is woven from a special warp, drawn in thread and thread on the rubber and binder harness. This frills up when the elastic part of the web contracts. Such webs are confined almost entirely to the corset branch of the business, but the soft frill edge unfits it for popular use as a suspender web.

During the past few years there has been a notable development in the use of long stretch light webs for suspender purposes, and round edge lisles, both in plains and fancies have become very popular. The

high price of rubber resulted in many heavy goods of short stretch being put on the market at that time. This was largely responsible for the change in style. Efforts were made to get goods of suitable elasticity within the limitations of popular prices. The field of design for such webs seemed at first very limited, but it has since proved to be quite prolific of change and variety.

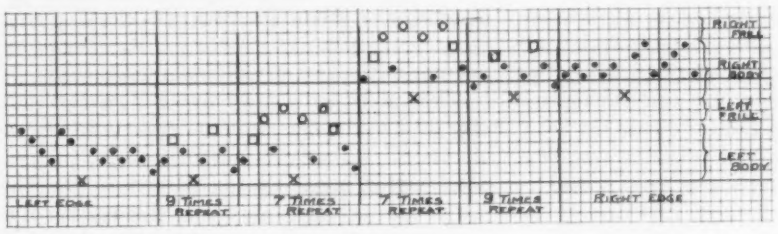


FIG. 71

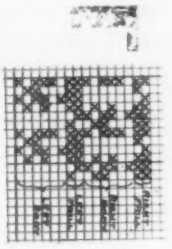


FIG. 72

The construction of these goods is similar in many respects to that of fancy garter webs, which are made with a warp figure. They are much heavier and of shorter stretch, and invariably have a round or plain edge. The introduction of the round edge on long stretch single cloth webs calls for great care in regulating the balance of such goods, both in planning and when they are placed in the looms. Edges must not be made too heavy. They require double rubbers to contract with the body. Fig. 73 shows a draft for such a web, being a combination of honeycomb and plain weaves for the ground, with a simple figure inserted. The rubber harness is indicated by the arrangement of the gut threads necessary to uniformly balance such a web. Fig. 74 is a chain draft, the construction being as follows:

Edge, 25 threads 2/40s
Binder, 42 threads 2/40s
Figure, 20 threads 2/40s
Gut, 38 threads 2/40s
Rubber, 22 threads 36s
Reed, 17 dents.
Filling 2/26s

While experience may indicate in a general way the number of gut threads needed at the different points, and while the web may appear flat where woven and coming through the press rolls, it is a good plan to finish a small sample of the fabric in order to show the effect the steam shrinkage will have on the different weaves.

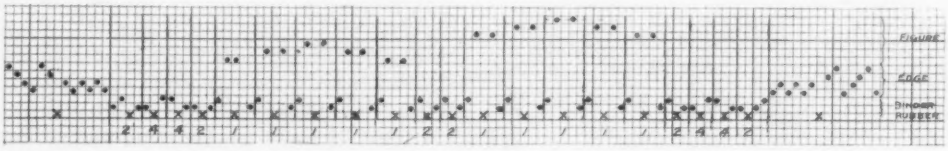


FIG. 73

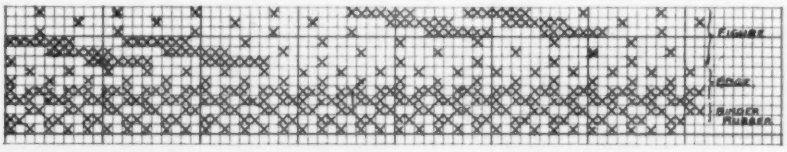


FIG. 74

Wide ribbed filling effects are very popular in mercerized goods as the luster of the yarn is more pronounced. These goods

are really two dent effects, the binder threads being omitted at every other cord, thus allowing the floating filling to span two cords instead of one. Weighting the binder so that it cuts into the web makes the filling rib stand up sharp and clear. Each pair of rubber threads coming together in very open cavities increases the power of contraction. As a result considerable gut is required to offset this. The firmness and "lay" of these goods depend on the introduction of sufficient back warp. Fig. 75 is a harness draft for a web of this kind. Fig 76 is the chain draft. The construction is as follows:

Edge, 33 threads 2/60s
Binder, 80 threads 2/60s
Back, 40 threads 2/40s
Gut, 80 threads 2/40s
(4 to each body rubber)
Rubber, 24 threads 36s
Reed, 17 dents.
1 1/8 inches wide.

(To be continued)

THE WINTER SHOWING IN GOLDEN SQUARE

STYLES, COLORS AND NOTES FOR 1914

London, Jan. 22, 1914.

The showing in Golden Square has been in one way a most interesting event, interesting chiefly, owing to the advent of so many buyers from the markets of the United States of America. We have, of course, been accustomed to see some buyers from the States every season, but we have had quite a lot of new faces here this season, and they have been more than welcome, owing to the fact that the season had not been a good one, so far as the home markets and those of the Continent are concerned.

Trade has suddenly become bad, and just as manufacturers were beginning to write down the season as one of the worst on record, some of these American buyers came along and made a bad season a better one, for they have left some orders behind them. It is true that some of the orders have not been so large as manufacturers would like to have seen, but on all hands one has heard nothing but praise for the manner in which most of the American buyers have conducted their operations. They have not ordered pieces or pattern lengths with that recklessness which often engenders distrust and suspicion in the minds of makers, but they have bought cautiously and with great judgment, which is to their credit, especially as it is the first visit of many of them. They will be welcome when they come again next season, and manufacturers will then be in a better position to provide for their requirements in the way of weights and colors.

The standard weight for a worsted suiting in this country, and on the Continent is 20 to 22 ounces. It used to be 24 ounces, but winter weights are lighter. For the American markets anything from 18/20 is heavy enough, and some have bought 16 to 17 ounce goods. The high price of raw material has had the effect of raising prices, especially of worsted suitings. This has had a depressing effect upon trade, which combined with the mildness of the weather, and the scarcity of money in almost all the markets of the world, has made business very difficult.

The prices for the best fancy worsted suitings have been from 7s. to 8s. ($1.68 to $1.92) per yard. For a lower quality, a mixture of Botany and crossbred, the prices have varied from 6s. to 7s. ($1.44 to $1.68) and in some cases ($1.38) has been the price for 18/19 ounces.

Since worsteds have been too high for some buyers, they have been buying Saxony suitings. These are made from woolen yarns, and are not so expensive as worsteds. Prices here have ranged from 5s. 6d. to 6s. ($1.32 to $1.44), but one Scotch house has been showing a cloth at 5s. ($1.20) per yard, which has taken the market by storm. This cloth has been shown in some very nice mixture shades of brown, olive, greys, blues, blue greys, and many subtle mixtures of a neutral combination.

Cheviots and homespuns vary in price a good deal, the best commencing at about 5s. 6d. ($1.32) and going up to 7s. and 8s. ($1.68 and $1.92) for suitings. Yorkshire imitations in pure wool range run as low as

about 3s. to 4s. ($.72 to $.96) and where cotton is used to cheapen and strengthen the fabrics, the price has been down to 2s. 6d. ($.60) and even lower.

Overcoatings of the fleece order have been shown from 3s. 6d. to 8s. ($.84 to $1.92), the lower qualities coming from Yorkshire, and the higher ones from Scotland and Ireland, although some high price goods are also made in the Yorkshire districts, where there are some very large mills. Blue naps have sold well for the States at 2s. to 5s. 6d. ($.48 to $1.32) from Yorkshore, while the west of England and other high class districts have shown cloths about 8s. 6d. per yard ($2.04).

Black worsted coatings begin at about 5s. 6d. ($1.32) for 16/17 ounces, and go up to 8s. 6d. ($2.04), but very good cloths are shown at the lower figure. Serges are all sorts of prices from 4s. 6d. to 10s. 6d. ($1.08 to $2.52), but at 5s. ($1.20) a very good Botany 18 ounce serge can be bought if the buyer knows where to look for these goods.

Suitings are mostly of the grey, olive, brown and blue ground colors, but most of these shades are of the mixture order. In blues we have the blue and white, blue and lavender, blue and grey, blue and gold, blue and red; the mixture being so carefully blended that they have to be looked into to discern their true beauty. Browns are not so pronounced as they were, but are being blended with other shades of blue, green, and colder shades. The tendency here has been to get off the red and fiery shades and tones. A subtle olive shade with orange twist, blue, and red coloring ends or skeleton checks has been a favorite.

A number of stripes have been selling in suitings, but there has also been a demand for small checks. Little two and two effects, pick and picks, four and four effects have been popular. There is also the little check over the ground check. This has been chiefly of very fine ends and picks of some colored or twist colored yarn in silk or worsted. Some very good ranges have been shown in silk overchecks of white, and these look very well on dark grounds. Styles have been so small, however, that it has been extremely difficult to get much variety in either checks or stripes. When styles broaden out a little there will be more scope for the designer. There has been a little indication in this direction, in that buyers have been taking small herringbone stripes in suitings. Hitherto it has been the line stripe on the plain ground, until one has become tired of such designs.

In worsted trouserings, which range in price from 3s. to 4s. 6d. ($.72 to $1.08) there has been a demand for black grounds with white silk stripes. Sometimes the white has been varied by colored silk, but styles have been on the neat side, and nothing large or bold has taken the fancy of the buyers.

Dress coatings have been in good demand, and prices have ranged from about 4s. 6d. ($1.08) for Bradford goods to 10s. 6d. ($2.52) for West of England dress coatings.

J. M.

WASTE YARN IN LACE MANUFACTURE

BY HADDON

In looms used for producing twist fabrics such as Levers or Nottingham laces, the filling threads are held to the warp by a fine thread which winds around it. This is accomplished by winding the thread on bobbins, usually made of brass and therefore called "brass-bobbins," which pass between the warp threads, going through on one side and returning on the other, forming a spiral around the warp, and holding the filling thread to it. These bobbins are of varying sizes, owing to the different qualities of goods. For instance, a "six-point" lace has six warp threads to the inch, and so the bobbin can be a little less than one-sixth of an inch thick. With a "fourteen-point" lace there are fourteen warp threads to the inch, so the bobbins cannot be quite one-fourteenth of an inch thick. These brass bobbins hold from 80 to 250 yards of yarn.

In the manufacture of lace the bobbin yarn is gradually unwound, and where the filling threads are close together, forming a heavy pattern, the thread is exhausted much more rapidly than in the open parts of the lace. Although all the bobbins pass back and forth an equal number of times, less

yarn is required to wrap around the warp alone than is required to wrap around a couple of filling threads and a warp. As a result of this the bobbins in the heavy part of the lace become empty while there is still considerable yarn on those in the lighter parts of the pattern. When a bobbin becomes empty the machine is stopped and it is taken out and replaced by a full bobbin. This method of replacing the empty bobbins by full ones cannot be practiced continually owing to the expense. Every empty bobbin means a break in the lace which requires mending, and to replace a bobbin necessitates stopping the loom with a considerable loss in time. To overcome this, when it is noticed that the bobbins are beginning to run empty, care is taken to see every break as it occurs and replace the empty bobbin at once, and as soon as the end of the curtain or the end of the pattern is reached, the loom is stopped, all the bobbins removed and replaced by full ones. The change is delayed until the end of the pattern to prevent a line across the design from the ends of the bobbin yarn.

These bobbins from the loom are then stripped of the remaining yarn and rewound. There are several features which necessitate the removal of old yarn before any yarn is wound. It would take too much time to tie the individual threads to the ends remaining in the bobbins; the methds of winding, placing 100 or more bobbins on a rod which is placed in a winding machine, requires that they be of the same size to start with, as some of them would be over-run while others were not nearly full; bobbins cannot be wound full owing to the small lip on the spring which holds the bobbin in the carriage. This lip goes in between the two sides of the bobbin.

As it is necessary to strip the bobbins as quickly as possible, they are usually placed on a rod, a boy grasps the ends of the yarn and pulls it off, the yarn quickly unwinding until all the bobbins are empty. This yarn, which is made especially for this purpose, is quite expensive, and represents a considerable item in lace manufacture. By careful attention on the part of the weaver or "twist-hand," these bobbins can be run down until they contain on the average a little over 20 yards. As there are from 2,000 to 4,000 bobbins in a machine, it is evident that this loss is considerable with every change of bobbins. The logical way to save this yarn is to rewind it and is suggested by "Gaul" in the December issue of the Textile World Record. In this article, however, he gives conditions abroad where a price of five centimes or one cent in American money is paid for rewinding 60 bobbins. On bobbins which contain 2/60s yarn, of which there is 25,200 yards to the pound, 60 bobbins averaging 20 yards, there would be 1,200 yards rewound for one cent, or 21 cents per pound. At this price it would be profitable to rewind the yarn, as about two-thirds of the value would be recovered. When it is considered that each bobbin must be handled separately, the end tied and the yarn rewound, one cent for sixty bobbins is an impossibility in this country where child labor is restricted. In addition to the increased cost of American labor there is the fact that this method is very slow and takes so much time that a great many bobbins must lie idle. Under these circumstances it would not be profitable to rewind the yarn at a cost of much more than one cent per 60 bobbins. Since this is an impossibility in this country, a method of saving the yarn which would be rapid enough not to necessitate too many idle bobbins, and which could be carried on cheaply enough, would be of considerable help to these trades. This 2/60s brass-bobbin yarn is worth in this country from 60 to 65 cents per pound, so any method of recovery should be of such a nature that its cost together with the decrease in the value of the yarn owing to the many knots, will show apreciable economies The other counts of yarn used are priced proportionately.

Ancient cloth was woven in upright frames on which the threads of the warp were stretched, and the weft was put in by picking a place for it with a long needle, inserting a thread and pressing it down on the previous one with the needle.

ENGLISH NOTES

By Our Regular English Correspondent

As one of the places from which relief might come, the American market attracts unusual attention in these depressed days. There must be some 50,000 looms idle in Lancashire, as a result chiefly of dear cotton, but full time is still worked in the spinning branch. In Yorkshire a great deal of worsted spinning machinery is making only 4 1/2 days a week. Every weaving manufacturer reports business as bad and has machines idle. The carded woolen trade is better off than its neighbor, but the pressure is lower than for several years past. Wool prices are still too high for the minds of buyers of fabrics. Dear jute has made havoc of the Dundee trade and except the linen damask makers no section can be said to be still in the enjoyment of a boom. Signs of easier prices, greater confidence or new openings are eagerly scanned, but not even those in closest touch with America profess to know how soon demand may begin or to what dimensions it may grow.

Consular returns show larger shipment of goods to the United States in December. From Manchester there was an increase of about $150,000 in cotton piece goods on the month and from Bradford of about $125,000 in cotton dress cloths and cotton linings. The increases in Bradford shipments of wool goods are larger and amount to $500,000 on worsted stuffs and linings and $175,000 on worsted coatings. In this list there is a new item of $105,000 in worsted tops and a total $31,500 of worsted and mohair yarn. The amounts are regarded as symptoms rather than as achievements. Twice under the Wilson Tariff Bradford's annual shipment of wool and goods to America exceeded $25,000,000 and the amount was approximately half as much last year. Since 1897 the scale built of production and consumption has grown so much that the amount then attained is no true criterion for today. During eleven months of last year roundly $1,440,000 worth of stuffs, linings and coatings were sent from the Bradford district to America. During the single month of December the corresponding total was $910,000.

From a series of inquiries made by the "Times" it appears that some Leicester knit goods manufacturers are expecting to do more in cashmere, all-wool and fancy goods. Nottingham knitters, with the example of lace machinery before their eyes, expect American knit goods men to enlarge their plants now that machinery can be imported upon easier terms. Nottingham lace manufacturers while not counting upon a great increase of business are glad that the old discrimination which told against them and in favor of German embroidery has been swept away.

* * *

Two declarations in Arno Schmidt's address to a body of Indian planters deserve especial note: That India alone is the country that can come immediately to the rescue of the raw cotton supply: That Mr. Schmidt (secretary of the International Federation of Spinners) is of the matured opinion that the limit of the American output of raw cotton has been reached. Lancashire knows that America has the land and the visiting Commission of spinners reported in 1906 that Texas by itself could produce 30 million bales. The Commission regarded the question of increase as depending upon more scientific methods of cultivation, greater efficiency of labor and better handling of agricultural resources. The despondency is perhaps attributable to unfaith in the use to be made of the natural advantages, although desire to stimulate the Indian Government into doing more to promote cotton growing may have had its weight.

Mr. Schmidt showed that at present the Government of India is not doing much. There are experts attached to the Department of Agriculture, but these men have immense areas to supervise; one expert is in nominal care of a territory as large as Egypt. The expenditure of Rs. 215,667 ($75,000) upon the Department cannot be called large and the sum includes the salaries of college teachers, not immediately

connected with the land. Mr. Schmidt told the planters that their Government did not spend one-tenth as much as it should in promoting agriculture.

Indian cotton is so little used in Lancashire that last year's imports into Britain formed only 1 1/3 per cent. of the whole. Good seed has the bad habit of degenerating in Indian soil in its second year and, however profitable to its grower, Indian cotton remains almost exclusively a fiber for making coarse yarn.

* * *

The Fabrics Misdescription Act which came into force in this country with the New Year relates solely to the matter of inflammability. It is the outcome of the agitation against the use of readily inflammable flannelettes and it forbids any fabric to be sold as non-inflammable which does not satisfy certain tests. A sample not less than one yard square is to be taken and to be three times thoroughly washed with soap and water, dried and ironed. The sample is to be hung vertically without folds or creases and the flame of a wax taper (1/8 to 3/16 in. diameter) is to be brought into contact with the fabric one inch above the lower edge and kept in contact for not less than twelve or more than fifteen seconds. The sample will be satisfactory if (a) it is not thereby set alight or (b) if it burns without flame or (c) with a flame which converges and does not spread and thus dies out.

The order to wash with soap is noteworthy. It is soap which safeguards the non-inflammability of some prepared flannelettes and a less favorable issue might be expected from washing these in plain water. Wearing apparel is not quite the only fabric sold as fireproofed and it will be interesting to see whether the authorities notice the canvas used for stage scenery, some of which is understood to be fireproofed by the simple process of stencilling a word to that effect upon the back. In any case scenery is not made to be washed, nor are all the hangings used in decorating bazaars. The apparent refuge for manufacturers is a notice setting forth that although the goods have been treated to reduce their inflammability no guarantee that they will pass Home Office tests is given.

* * *

An aeronautical engineer reports that the favorite material for aeroplane wings at present is linen. The wings are covered as tightly as can reasonably be done by hand in a dry atmosphere and then the fabric is treated with a mixture consisting of casein solution, or of cellulose acetate or butyrate dissolved in acetone. Three or four thin coats are given and the treatment costs as high as $75 for an ordinary machine. These are the mixtures that the aviator calls "dope" and they serve a number of purposes. They strengthen the canvas by about 5 per cent., they tighten it uniformly, they exclude or minimize contraction and expansion from wetting and drying, and they close the interstices and thus reduce air friction. Silk can be used in place of linen at a saving of weight, but at an increase of cost, and silk is too elastic not to bulge in flight. Fabrics which yield to the strain are on the other hand less liable to tear and the matter of tearing in its relation to cloth structure interests the engineers. If a few extra strong threads are introduced into aero fabrics it is found that a tear, when it comes, runs along the weaker threads alongside. Plain 1 and 1 weaves are preferred because the threads distort more easily and, in a loom woven and undoped wing, the threads tend to run together at the apex of the tear and thus to take up the strain in company. The whole matter is doubtless destined to become of much greater textile importance.

To the use of dissolved cellulose for aero wings may be added its use by a French surgeon for stiffening bandages intended to give support and again for varnishing dry plasters and making them waterproof. The solvent used is again acetone, an expensive reagent and one that could probably be replaced by one of the viscose mixtures used for dressing book cloths and making imitation leather.

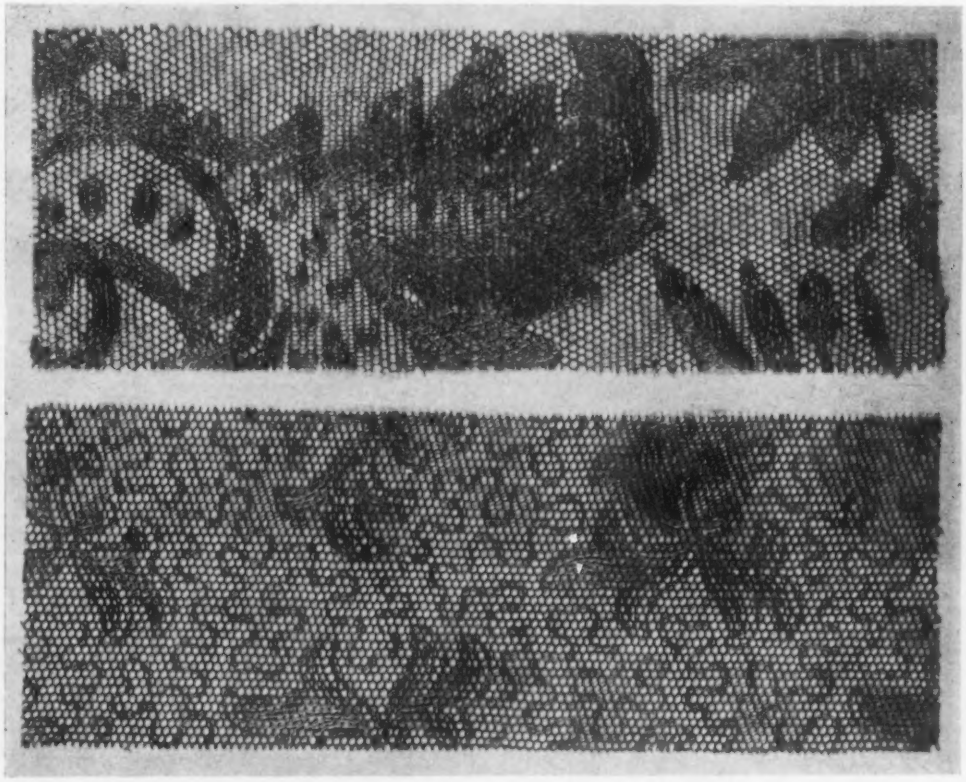
* * *

In response to Bradford wishes, one sailing ship is to load at Melbourne this season and to bring probably 10,000 bales of wool

to England. If the difficulty of finding outward cargo can be solved, more sailing vessels may be put into commission next season. The freight charged from Melbourne to the new Lincolnshire port Immingham is one cent per pound on grease wool, against 1 1/2 cents by steamship. Part of this margin is absorbed by the higher cost of marine insurance and the longer bill, for the wool arrives in from four to twelve months by sail as against three months under steam. One month's warehousing is saved by the slower ship and at the new port storage can be had for 6 cents per ton per week, as against twice that cost in Bradford. The advantage is only partly one of expense. At present the colonial wool pours in in a heap blocking the railroads, choking the warehouses and exasperating everybody. Slow transit for wool not immediately required means less inconvenience at the destination and easier finance.

* * *

A new line of printed cotton nets, produced in Nottingham, shows a distinct advance in its own class of work. [Samples of these goods are shown in the illustration and can be seen at our Boston office.] Further than that the process used is an adaptation of calico printing, no details of the method of manufacture are forthcoming. It results in laying upon the face of the net figures raised in relief and fairly firmly adherent. The composition employed is pliable and the final appearance suggests that it is applied in a stiff consistency to deeply engraved rollers. An opaque white composition is printed on the white nets to imitate stitching, but more of the patterns are printed in gold, aluminium and colored metallic pow-



SAMPLES OF PRINTED COTTON NET

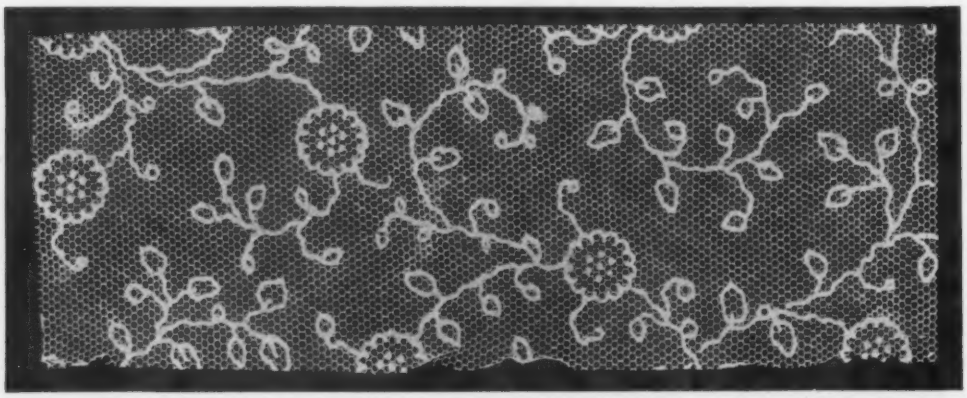
ders, giving much of the appearance of embroidered artificial silk. In some of the heavier patterns printed in metallic colors upon black net the imitation of the stitch is particularly successful. Prices of the goods range from 60 cents to $2.88 in 18 to 36-inch widths. Fashion is favorable to colored trimmings and the production of fancy laces by a printing process is an idea that has engaged the attention of a good many people.

* * *

An indignant insurance manager hastened a while ago to a Yorkshire mill to repudiate a claim for compensation in respect of injuries suffered by a workman, aged 76, who had fallen off a cart. Like some others of the old school the man rejected all offers of a pension so long as he could be allowed to make himself of use. There are other aged men in the same branch—enough surely to give hosiery yarn spinning a good name for longevity. At Thornes Mill, Wakefield, a man of 80 works in the dyehouse, as he has done for 67 years past; in company with one who has been there so long that his beginnings are forgotten even by himself. Anthrax barred, there is perhaps no mill employment more healthful than wool sorting and four sorters in this mill have each over 40 years' service in the room. Records of the kind are associated with patriarchal employers, but the odd fact is that for a decade Thornes Mill has been run by a combine, charged with all the maleficence of a capital of $4,250,000. The mill is the R. H. Barker & Sons department of J. & J. Baldwin & Partners, Ltd., and the Baldwins have in their Halifax mill three brothers whose years of service with the firm aggregate 183. John Shore, overlooker and the eldest of the three has been in the mill for 66 of his 74 years. Baldwin's dividends have been 7 1/2 and 10 per cent. for the last two years respectively.

* * *

An English Act of 1552 has some pointed references to "the gredge and covetous myndes . . . of suche as have the great plentye and habundaunce of Sheepe and Woolles," no less than to "the corrupt practises of diverse Broggars, Ingrocers, Woolgatherers and Regrators." To the operations of these parties was traced the fact that wool prices were "wonderfullye and excedinglie enhaunsed and raysed to the great hurte detryment and decaye of the Realm." The Broggar is of course the broker and the woolgatherer, known sometimes as the wooldriver, was the predecessor of the almost extinct race of woolstaplers who are now merged with the topmakers. The gatherer retailed wool in lots weighing a few stones. The engrossers and regrators, with whom were commonly classed the forestallers, were the market operators of the day who nefariously speculated for a rise. As the authorities of the time thought they had had enough

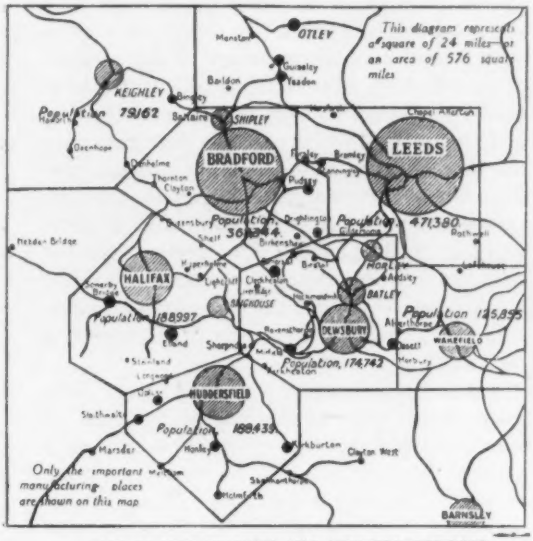


A SAMPLE OF PRINTED COTTON NET

of the middleman they forbade any but a manufacturer, "his wief or apprentice" to buy wools, making exception simply of the Newcastle merchants and the merchants of the staple at Calais. Farmers they compelled to sell wool within twelve months after shearing under penalty of ten shillings a "Todd" (28 pounds). And as English farmers have been known to store wool for periods rising to half a century this last provision would not be renewed entirely without acclamation were it to be reenacted today.

* * *

The accompanying map of the woolen and worsted district of England is of interest in view of the nearly equal competitive basis



MAP OF THE WOOLEN AND WORSTED DISTRICT OF ENGLAND

that have been established between the English and American industries. The population of this area is nearly two millions. North of Otley and east of Leeds the country is agricultural. West of Hebden Bridge across hills and moors is Lancashire. South of Wakefield is the Yorkshire coalfield. Coal is mined at small pits as far north as Bradford and Leeds and there are other industries carried on within the circle. For example, at Keighley the men work in textile machinery and engineering shops and the women and children in mills. Bradford is the most exclusively textile of the large cities. Leeds has iron, leather, engineering, clay working and other trades. Halifax is a machine-tool making center. Brighouse is a silk spinning and cotton-doubling town. Around Cleckheaton are card-clothing, card wire, chemical and belting works. The division containing Dewsbury, Batley and Morley, known as the Heavy Woolen District, has numerous coalpits. Wakefield has engineering works. Huddersfield has considerable machine shops. The towns marked upon the map are linked one with another by electric tramways and the spaces between towns are so filled with mills and houses that the whole may be regarded as a continuous city.

COST FINDING IN COTTON CARD ROOMS

BY CALABRIA

The number or hank of any roving is found by dividing the number of hanks, or 840 yard lengths in the sample, by the weight in pounds. The average number produced in any card room is found in the same way, that is, by dividing the total hanks produced by the total number of pounds produced of the various kinds of roving.

To take a specific case consider the following table showing the production for a four weeks' period:

PRODUCTION REPORT

Four Weeks ending March 10, 1905

Hanks Roving	Pounds Produced	Hanks Produced
1.00	72,504	72,504
1.20	110,340	132,408
1.50	448,410	672,615
2.00	649,123	1,298,246
3.00	192,880	578,640
5.00	81,793	408,965
7.00	12,070	84,490
Total	1,567,120	3,247,868

Average hank roving, 2.072.

JOHN DOE, *Overseer.*

The average hank roving is found by dividing the total hanks produced by the total pounds produced. This means that in order to have produced a single roving with the total hanks and pounds as given it would have been a 2.072 hank roving.

In figuring the cost per pound by the

average number method the total pay roll for the four weeks is divided by the total hanks produced. This will give an amount representing the "cost per number," "cost per unit," or really the "cost per hank."

This cost per hank multiplied by the hank of the finished roving will give the cost per pound of that roving. For instance, take the case of the 1.00 hank roving. As the average cost per hank is of a certain amount and there is one hank in a pound then the cost per pound will in this case be the cost per hank. In the case of 2.00 hank roving, there being 2 hank in a pound, the cost per hank must be multiplied by 2 to get the cost per pound, and so on to get the cost per pound in each case, the cost per hank must be multiplied by the hank of the roving. Following this out, the cost per pound of the various kinds of roving is shown in the following table:

COST PER POUND FINISHED ROVING
Four Weeks ending March 10, 1905

Hank Roving	Hanks Produced	Pounds Produced	Cost per Pound	Total Wages
1.00	72,504	72,504	$.002781	$201.54
1.20	132,408	110,340	.003337	368.21
1.50	672,615	448,210	.004171	1,871.32
2.00	649,123	1,298,246	.005562	3,610.43
3.00	192,880	578,640	.008342	1,609.01
5.00	81,793	408,965	.013905	1,137.34
7.00	12,070	84,490	.019467	234.97
Total	3,247,868	1,567,120		$9,032.82

Total hanks produced, 3,247,868.
Total pay roll, $9,032.91.
Average cost per hank, $.002781.

JOHN DOE, *Overseer.*

An analysis of the foregoing table shows the following points of interest:

The average cost per hank is found by dividing the total pay roll by the total hanks produced.

The cost per pound is found by multiplying the average cost per hank by the hank of the roving.

The total wages charged against the different hanks produced is found by multiplying the cost per pound by the pounds of roving made.

The sum of the wages charged against each kind of roving should equal the amount of the total pay roll. (In this case there is a discrepancy of 9 cents due to the fact that in working up the costs the results were not carried out far enough.)

The cost per pound of 1.20 hk, 1.50 hk, 2.00 hk, 3.00 hk, 5.00 hk and 7.00 hk are respectively 1.2, 1.5, 2, 3, 5, and 7.00 times as large as the cost per pound of 1.00 hk.

In this particular case the 1.00 hk is a one process roving; that is, it is finished as it comes from the slubber. The 1.20 hk, 1.50 hk, 2.00 hk and 3.00 hk rovings are 2 process rovings and the 5.00 hk and 7.00 hk are 3 process rovings. The 5.00 hk roving is made from 1.50 hk back roving and the 7.00 hk from 2.00 hk back roving. In each case the total pounds of 5.00 hk and 7.00 hk have been deducted from the gross of the 1.50 hk and 2.00 hk so that the net pounds only show on these reports.

In considering the accuracy of this method of cost finding, first consider the fact that 1, 2 and 3 process rovings are all averaged up and the general room expense that goes into the manufacture of the 2 and 3 process rovings is proportionately charged to the one process work. Actually the one process work is finished before ever getting that far and the help handling the 2 and 3 process work never even see the one process work. This shows one of the many inaccuracies of this method.

Consider the case of 5.00 hk roving. It is made from 1.50 hk back roving, some of which is sent to the spinning room as 2 process finished work. The cost per pound of 1.50 hk roving is $.004171. The cost per pound of 5.00 hk roving is $.013905. By this method the cost per pound to produce 1.50 hk is less than one-third the cost of 5.00 hk. This being true then the extra cost entering into the cost per pound of 5.00 hk is all consumed in converting this 1.50 hk into 5.00 hk. In other words, it costs better than twice as much more to just speeder 5.00 hk than it does to carry the 1.50 hk along from the lap up to the 5.00 hk frames.

Most all will agree that this is not the actual fact. In other words this method of cost finding does not give the accurate cost per pound.

The proof, or the balancing of the wages and pay roll, has often been exhibited as

proof of the correctness of the method, when in reality it is only proof of the correctness of the arithmetic.

The fact there that one figure is too high only proves that others may be too low and this condition is liable to lead to great loss if such figures are used in estimating the cost of goods to be manufactured. This is liable to lead to a large sale of goods undervalued and short sales on goods overvalued, with resultant loss to the mill.

In a mill where the range of numbers is small and the organization is such that all rovings are treated in nearly the same manner the average number system may be close enough and with the "educated guess" of some one familiar with conditions, serve every purpose. In a mill however making a large range of numbers and many kinds of work it is not only unreliable but inaccurate as well.

No one system has yet been discovered that will cover all conditions of manufacture and no two mills on widely varying fabrics could with success use the same system.

The simplicity and cheapness of this method are really the only factors that can commend its use to the majority of mills today.

A HAND BOOK OF WEAVES

By G. H. OELSNER, Director of the Weaving School at Werdau.

Translated and Revised by Samuel S. Dale

This Series began in July, 1911

A similar fabric is shown at Fig. 1398; the face is a 4-leaf basket, Fig. 1395; the back, a modified broken twill, Fig. 1396; the stitching order is 8-leaf satin, Fig. 1397.

Fig. 1402 is also a weave for worsted cloth. The face is a 7-leaf double satin 5 up 2 down, Fig. 1399, the back is likewise a 7-leaf double satin, Fig. 1400, but in 2 up 5 down order. The stitching is in satin order,

FIG. 1395.

FIG. 1396.

FIG. 1397.

FIG. 1398.

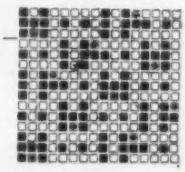


FIG. 1399.

FIG. 1400.

FIG. 1401.

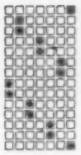


FIG. 1402.

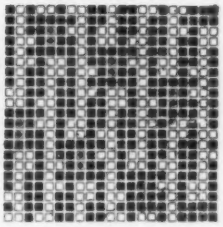


Fig. 1401. The two weaves are stitched by bringing the back warp thread above two adjacent face picks, indicated by dotted squares. This particular method of joining double weaves should be used only when the back and face warp are of the same quality and color and the stitchers are well covered by warp risers on either side as in Fig. 1402.

The back weave is often plain when the cloth is made with a worsted face and woolen back. This is the usual course when both face and back are woolen, the object being to make the fabric firmer. At Figs. 1410 and 1414 are shown two examples, in

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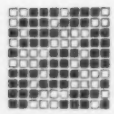


FIG. 1403

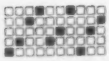


FIG. 1404

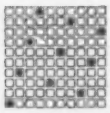


FIG. 1405

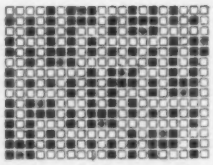


FIG 1406

FIG. 1407

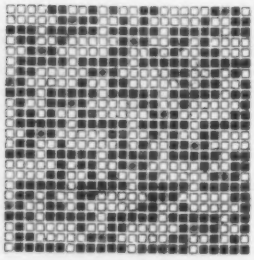


FIG. 1408

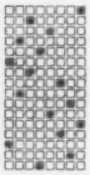


FIG. 1409

FIG 1410

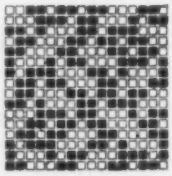


FIG. 1411

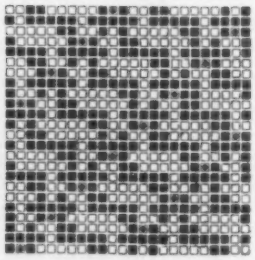


FIG. 1412

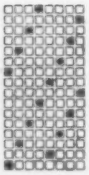
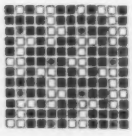


FIG. 1413

FIG. 1414

FIG.1418



FIGS. 1419 1420 1421

FIGS. 1422 1423 1424

FIG. 1425

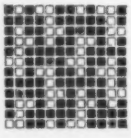


FIG. 1426

FIG 1427

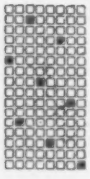


FIG 1428

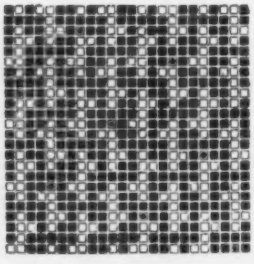


FIG. 1429

which the face weave is crepe, and the back plain. The face and back weaves and order of stitching for Fig. 1410 are shown at Figs. 1407, 1408 and 1409; for Fig. 1414, at Figs. 1411, 1412 and 1413.

Warp weaves, preferably the broken 3 up 1 down twill, are used for the face of face finished goods. The back is often woven plain and the stitching so arranged that 2 stitchers come in each square of 6 threads,

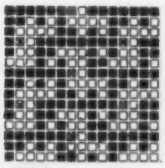


FIG. 1415

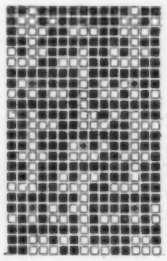


FIG. 1416

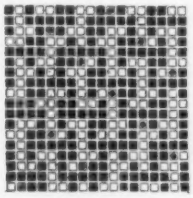


FIG. 1417

Attention is called to two other weaves for heavy woolen fabrics, the army tricot, Fig. 1415, and the army diagonal, Fig. 1416.

The first, Fig. 1415, is the tricot long, Fig. 1320, with a plain back. The warp is set 4 face 1 back; the filling, 2 face 1 back; stitched from face to back.

The face of the army diagonal, Fig. 1416, is the diagonal shown at Fig. 313, the back being woven with the cross rib weave, Fig. 208. The warp is set 4 face 1 back; the filling, 2 face 1 back; the stitching is from back to face.

4 stitchers in a 12 thread square or 8 stitchers in a 24 thread square, as shown in Figs. 1418, 1425 and 1429, respectively.

The face and back weaves and stitching

FIGS. 1430 1431 1432 FIGS. 1433 1434 1435 FIGS. 1436 1437 1438

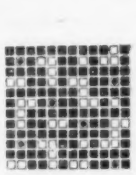


FIG. 1439

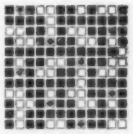


FIG. 1440

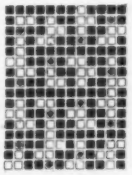


FIG. 1441

order for Fig. 1418 are shown at Figs. 1419, 1420 and 1421; for Fig. 1425, at Figs. 1422, 1423 and 1424; for Fig. 1429, at Figs. 1426, 1427 and 1428; for Fig. 1439, at Figs. 1430,

FIGS. 1442 1443 1444 FIGS. 1445 1446 1447 FIGS. 1448 1449 1450

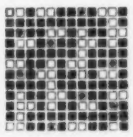


FIG. 1451

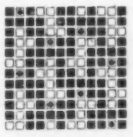


FIG. 1452

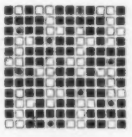


FIG. 1453

1431 and 1432; for Fig. 1440, at Figs. 1433, 1434 and 1435; for Fig. 1441, at Figs. 1436, 1437 and 1438; for Fig. 1451, at Figs. 1442, 1443 and 1444; for Fig. 1452, at Figs. 1445, 1446 and 1447; for Figs. 1453, at Figs. 1448,

1449 and 1450.

Lighter fabrics are sometimes woven with a 3-leaf twill face and plain back as shown at Fig. 1417.

THE MANUFACTURE OF FILLING LENO

By THOS. GRIME, Salmon Falls (N. H.) Mfg. Co.

I have read with much interest "J. T. B.'s" account of the manufacture of filling leno in the December issue. I have tried the same method and experimented with it about six years before I got my method perfected. The illustration, Fig. 1, in "J. T. B.'s" article is the only one that could be made with this process, if it were practicable. Fig. 8 is where the hitch comes as it will be seen that the shuttle would have to leave the race plate to get through the loop. This might be done if the shuttle was put through by hand, but when the power is behind the shuttle it would throw the shuttle out of the loom, as I know by experience.

As is well known, any kind of an attachment that is raised above the bottom of the shed would throw the shuttle out. There are also other serious objections to this motion. I think if this subject was investigated thoroughly it will be found that I am the first that ever made a filling leno by power. I have invented a motion that will weave any of the illustrations shown in the December article.

Fig. 1 shows the leno thread only, with this thread released from the heddle and drawn taut by the slackener, thus putting the

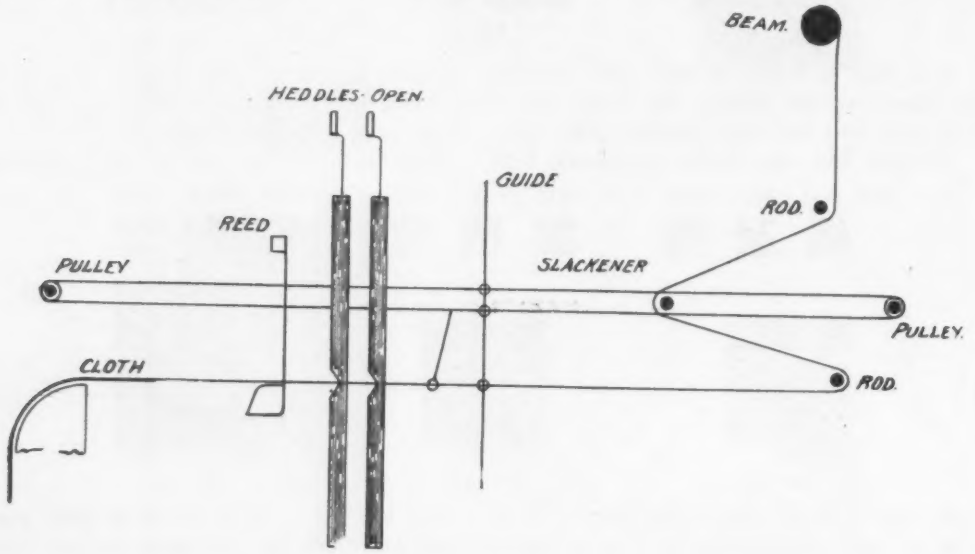


FIG. 1

pattern in the cloth and also in position to be locked again.

Fig. 2 shows the thread locked in the heddle and the slackener on its backward throw which operates the doup at the same time and pulls the loop in the shed. It will be readily seen that by raising or lowering the first, second or third harness, the bottom, middle or top thread of the loop can

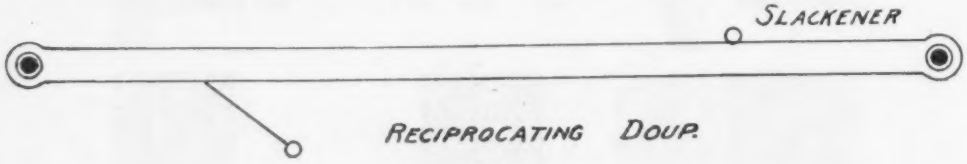


FIG. 3

be raised or lowered, thereby getting different kinds of loops. The bottom part of the loop is locked in the front heddle; the middle, in the back heddle; the top, in the guide; on the harness frames like any other heddle, only they take hold of the thread and let go when necessary. By this method I can get any kind of a loop simply by raising the dif-

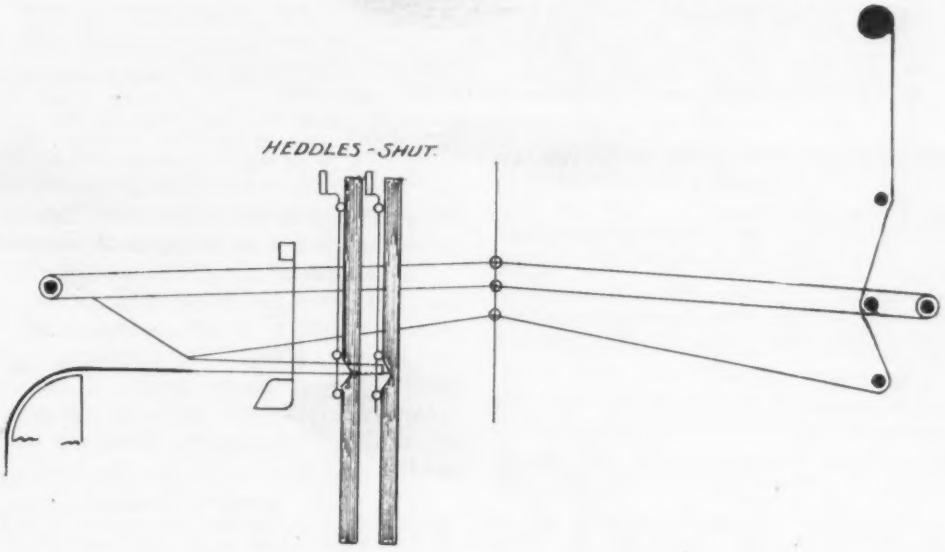


FIG. 2

thereby getting three different sheds, with only one thread.

Figs. 3 and 4 show attachments for the filling leno motion. The doup, Fig. 3, is

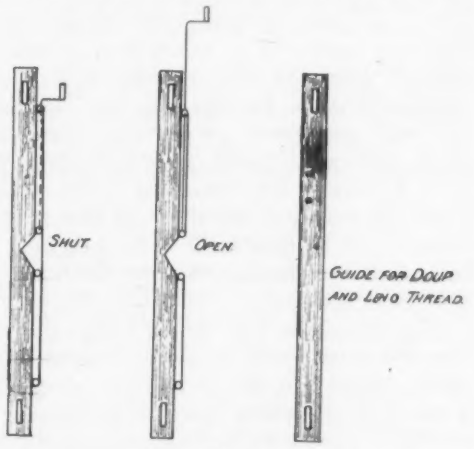


FIG. 4

operated on two pulleys. The pulleys are placed on a rod attached to the temple and back of the slackener. The patent hold and release heddles are operated by the dobby ferent frames or reversing the heddles.

Figs. 5, 6 and 7 illustrate the cloth made with these attachments. Fig. 5 shows the warp cord as it lays in a straight line, after having crossed the filling and while holding the filling in the crossed position in the cloth. Fig. 6 shows the warp cord wrapped entirely around the 24 picks of filling, pulling them together and making the pattern. Fig. 7 shows the cord wound around the filling as in Fig. 6, but also woven in as it goes around making a more substantial piece of cloth, as the cord cannot be pulled out.

In 1891 there were nearly 62,000,000 sheep in New South Wales. Now there are 39,500,000 sheep, or just 9,500,000 more sheep than are depastured in the British Isles.

The total value of the cotton knit goods imported into the United States for the month of April, 1913, was $281,364. Germany contributed cotton knit goods amounting to $243,207.

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

If the question is not of general interest to textile readers and involves expensive investigation, a charge covering the cost may be made, of which the inquirer will be advised before any expense is incurred.

FINISHING COTTON CLOTH TO MATCH A SAMPLE

Editor Textile World Record:

I enclose herewith two samples of Albert twills, one of which, marked X, is starched and filled for the finish of cloth required. The other, marked Y, is starched to produce the same finish, but you will see that the filling is not near as good. I used the following formula, per 100 gallons, for sample Y:

75 lbs. Sago,
100 lbs. Yellow Dextrine,
200 lbs. Tallow Softening.

The starching was done on a two roll mangle, consisting of a brass and wooden roll, after which the cloth was sprinkled and finished on a Schreiner calender. The cloth was then steamed to get the required luster. Please give me a better formula for sizing and finishing cloth Y to give an effect like that produced on cloth X.

Shillaber (2276).

As the construction of the two samples appeared to be quite different, we analyzed them with the following results:

Sample X

Warp 72 threads per inch, 1/38s.
Filling, 78 threads per inch, 1/25s.
Weight as received, 4 1/2 ozs. per sq. yd.
Weight after boiling off size, 3 1/2 ozs. per sq. yd.
Loss, 21 1/2 per cent.

Sample Y

Warp 71 threads per inch, 1/36s.
Filling 80 threads per inch, 1/32s.
Weight as received, 3 3/4 ozs. per sq. yd.
Weight after boiling off size, 2/9 ozs. per sq. yd.
Loss, 23 1/2 per cent.

The analyses show that the two samples contain about the same quantity of sizing material, but that there is a marked difference in their construction, sample X being 20 per cent. heavier than sample Y after the sizing has been removed from both. The yarn counts as given above are for the yarn as it lies in the cloth and after the sizing has been boiled off. While the warp yarn is about the same size in both samples, that in sample X being slightly finer, the filling in sample X is much heavier. This difference in the construction of the two cloths is the main reason for "Shillaber's" failure to finish the cloth Y so as to match sample X.

The weight of sample X consists of 37 per cent. warp and 63 per cent. filling; and that of sample Y, of 47 per cent. warp and 53 per cent. filling. The difference in the construction of the two cloths, X and Y, is shown clearly by the following comparison of the weight of warp and filling per square yard:

	Warp.	Filling.	Total.
Cloth X	1.30 ozs.....	2.20 ozs.....	3.5 ozs.
Cloth Y	1.36 ozs.....	1.54 ozs.....	2.9 ozs.

The greater quantity of filling in sample X gives the cloth a firm handle and fine face, whereas the deficiency of filling in sample Y makes the fabric sleazy and the face open and teethy. The difference is quite perceptible when the two cloths are held up to the light. In order to give cloth Y an effect like that produced on cloth X it is necessary to begin at the spinning room and adopt a formula for spinning and weaving that will put about 42 per cent. more of good American cotton into the filling of cloth Y, making the cotton part of the whole fabric 20 per cent. heavier. If this is not done it will be impossible to make cloth Y look and handle like sample X by any process of finishing.

This case illustrates the cause of many of the difficulties which finishers of cotton and other textile goods frequently encounter when they are called upon to finish goods to match a sample which differs radically in construction. It also illustrates the importance of a finisher's knowing how to analyze cloth so as to determine the difference in the construction of two fabrics and the reason why his goods do not match the

sample. The analysis is simple, the best method being that known as the "straight line" operation which has been frequently explained in these columns.

—÷—

HARDENING OF PASTE

Editor Textile World Record:

We use a paste made from sago flour, but it gelatinizes on cooling and becomes too hard to spread uniformly. Can you suggest some formula that will prevent this so that it will remain soft and smooth when cold? Basel (2243).

I have found the following recipe to give good results in sizing:

1 gal. water.
8 ozs. sago flour.
½ oz. alum.

Mix well and boil 5 minutes. Wheat flour can be used in place of sago flour with equally good results. Hector.

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THE DELIVERY OF WOOL GOODS ON ORDERS

Editor Textile World Record:

For the past three seasons, we have had continual trouble with cloak manufacturers on account of materials running below the quality of the contract sample. In answer to our complaints, the cloak manufacturers insist that they are helpless; that they can only give us such cloths as the mill will deliver, and the mills in turn say to them, "Take what we give you or cancel your order."

We have discussed this subject with other large cloak buyers and find that they have had the same trouble. We would like to find a way out of the difficulty.

We understand the men's clothing trade have very little trouble in this respect because they are assisted in maintaining quality by public examiners and spongers with whom they deposit the contract sample, and any goods offered by the mill below the contract standard, is returned to them.

We understand that cloak manufacturers generally do not patronize the public examiners and spongers.

We are very much in earnest in wanting to find a way that will enable us to maintain contract quality. We do not find our trouble confined to any particular cloth or mill. It seems to be general—includes chinchillas, pile fabrics and mixtures.

If we are not imposing upon you, we would like very much to receive your opinion and advice in the matter. If you think it of enough importance, we would be glad if you would discuss it through the columns of "The Textile World Record."

Savon (2283).

"Savon's" experience is exceptional. A crying abuse in the wool goods trade, both men's wear and cloakings, has for years been the practice of returning goods to manufacturers on the most trivial of excuses or with no excuse at all whenever the buyer found it unprofitable to keep the goods he had ordered. Not long ago we heard of a case where a buyer, who evidently was more callous or honest or stupid than the average, wrote to the mill that he was returning a lot of woolen goods because he found he had ordered more than he could use. Unjustifiable cancellations, the returning of goods without reason, excessive claims and other unfair and unbusinesslike methods have prevailed to such an extent as to constitute a scandal and make serious inroads into the returns from wool manufacturing. These abuses were investigated last year by a committee of the American Association of Woolen and Worsted Manufacturers, and the following extract from their report discloses the situation as the committee found it:

The examiners' committee which, as you of course know, was appointed for the purpose of investigating the system, or lack of system, that prevails in the matter of returns, rejections and unjust claims, has given a lot of time and thought in an effort to work out a plan by which the unjust return of merchandise and excessive claims could be reduced to a minimum. The association has sent to its members several recommendations in order to make them more conversant with what has been going on. We discovered a lot of things, that, while they were not new, were startling when freely admitted by both adjusters and spongers.

In the first place, we found that nearly every adjuster in the market had more business than he could possibly attend to and that mills and commission houses have been allowing claims and taking back goods, that not only have never been examined by adjusters, but have never been seen by them. They get reports duly signed by adjusters, but it is a physical impossibility for the adjuster to examine more than a very small portion of the merchandise claimed upon. For instance, one adjusting concern represents 95 mills and commission houses, and aside from the men who compose the firm they have two young men who are supposed to examine all the goods. Another firm has 55 mills and commission houses, another 63, another 52 and another 32. It is not an exaggeration to state that not more than 10 per cent. of rejected goods or goods on which claims are made are ever looked at or examined by the adjusters. On the other 90 per cent. they simply take the spongers' say-so regarding their condition, either sign or rubber-stamp a slip, and the claim is then passed by the mill or commission house as O. K., without question.

We also found that one adjuster examines for

both mills and cloth jobbers. In one instance, where the mill would not allow the jobber's claim, his argument to the jobber was:

"If you had hired me as your examiner, I could settle all such cases, without even referring them to the commission house, for I am both judge and jury."

This and innumerable similar experiences, with which it is unnecessary to take up your time, lead your committee to the conclusion that the prevailing system of examination throughout the piece goods market is a farce and will continue to be so while manufacturers allow claims in the present lax way and employ adjusters who have more business than they can take care of.

As our investigations progressed we discovered that there were certain improvements in the prevailing methods that could be effected immediately, and with this in mind, a communication was addressed to all members, embracing recommendations that could be put into immediate effect. For your information we repeat these recommendations here:

RECOMMENDATIONS

No. 1. All pieces to be marked at head end with stencil or punch, and on board end with piece number stenciled or stitched on cloth.

No. 2. All piece goods tickets to be stamped with date of invoice.

No. 3. All goods sold as a job to be stamped as follows:

"It is understood that these goods, being sold off-price, are not subject to return or claims of any description, except for short measurement. Goods to be merchantable all or none."

This stamp should be placed on the copy of order, bill and each piece goods ticket.

No. 4. All sponging houses, whether belonging to the Spongers' Association or independent, to be requested to furnish selling agents or commission houses, either weekly or semi-monthly, with a list of all goods remaining in their possession which have been in dispute, whether signed for return or not.

No. 5. No adjuster to be employed by a mill or commission house who also represents a jobber.

No. 6. Allowances for apparent imperfections should be made on the piece goods tickets as at present, but pieces be not strung.

As confirming the statements in that report we will mention a remark recently made by a prominent clothing manufacturer. He was discussing the Underwood tariff, which places the same rate of duty, 35 per cent., on both wool, cloth and wool clothing.

"While that looks bad," said the clothier, "you must remember that the American methods of doing business, returning goods, cancelling orders and making claims, gives the American clothing manufacturer an advantage of 5 to 10 per cent. over his English competitor where business is conducted on very strict principles. For that reason I think we will be able to compete under a flat rate for both cloth and clothing."

If "Savon" finds that cloaking fabrics delivered on order are not up to sample, his remedy is to insist on getting what he ordered, as is the rule in other lines of business.

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PREPARING YARN FOR BLEACHING

Editor Textile World Record:

Please inform me whether it would answer to prepare cotton yarn for bleaching by boiling it in a caustic soda solution in a machine which exposes the yarn to the air during the operation. Assume the caustic solution to stand at 1° to 3° Tw. As the yarn is exposed to the air and steam when not immersed in the liquor it occurred to me that there might be danger of making the material tender. Manhattan (2278).

We are informed by the Klauder-Weldon Dyeing Machine Co. that their machines are used for boiling out cotton yarn preparatory to bleaching. This is done when a small production is handled. A large production can be more economically handled by the use of a kier for boiling out, keeping the dyeing machine busy on the regular process.

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COMPARATIVE VALUE OF COTTON AND SILK

Editor Textile World Record:

Please let me know the market price per pound for 400s single strand cotton yarn. Also the market price for the finest silk yarn that can be obtained. Your reply will decide an argument as to the relative value of the very best cotton and silk that can be procured. Triangle (2269).

Our English correspondent replies as follows:

A quotation is enclosed from McConnel & Co., Ltd., of Manchester, showing the present price of 400s single cotton yarn on cops as £4 10s ($21.30) per pound. Inquiry made from another large concern producing fine yarn elicits the information that 2/400s "would be worth about £8 ($38.20) per pound." Such counts are spun only rarely and in small quantity. The highest count of cotton yarn used in a commercial way in England is 300s single and for this the price is 26s ($6.24) per pound. So far as can be learned the finest organzine silk produced is 14/16 deniers, quoted currently at £1 10s ($7.50) per pound. No silk upon the market

approaches such prices as those paid for the finest cotton yarn. James Strand.

[A sample of the 400s cotton yarn mentioned in the above reply can be seen at our Boston office.—Ed.]

SIZING AND SLASHING HARD TWISTED YARN

Editor Textile World Record:

We would like some information in regard to the sizing and slashing of 30s, 40s and 50s yarn, hard twist, and the way the yarn should be run on the slasher, the ends numbering 1100 to 1200 in the warp. We tried to run the colors with the white, but they get tangled up and would not pass the lease rods. We put the section beam in the creel as follows: 1 beam of white and one of color, two beams of each. The ends are so curled together that they break in big bunches. We have been using a divider close to the size box, but they still curl up. Warper (2270).

I have had a number of years experience with slashing hard twisted yarn, but have never had any trouble with its kinking or curling up like the sample submitted. Upon examining the sample I found that the colored yarn had a straight twist and the white a reverse twist. I have never slashed a straight and reverse twist together and it stands to reason that this will cause the curling. I would suggest "Warper" putting as many weights on the section beam as the yarn will pull.

I have been in the habit of making my size heavier for fine, hard twisted counts than for the ordinary twist. I would suggest using the following size:

120 lbs. starch,
8 lbs. tallow,
2 lbs. gum,
1 pt. turpentine,
1 bar Ivory soap.

Mix these together in a 210 gallon kettle. I think this will help remedy the trouble.

Staunton.

* * *

In slashing hard twisted single yarn, 30s, 40s and 50s, "Warper" will have to be very particular in several respects. In the first place the two colored section beams should be placed separate from the white section beams in the creel. I would suggest that he put the two colored section beams on the top stands and the two white section beams on the bottom stands in the creel, as shown at Fig. 1. Do not run the beams over each other, but keep each beam reasonably tight so as not to allow any slack ends to pass into the size from either the colored or white section beams. Use two contractors or bridges to contract the colored yarn into three equal parts, and the white into three equal parts, reducing the width from say 54 inches on the beams into 3 parts, 8 inches long as shown in Fig. 2. Do not allow the colored yarn to touch the white yarn either on the size box or on the cylinders until both reach the front lease rods, but allow 2 inches between each

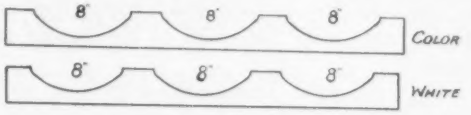

FIG. 2

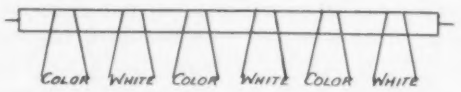

FIG. 3

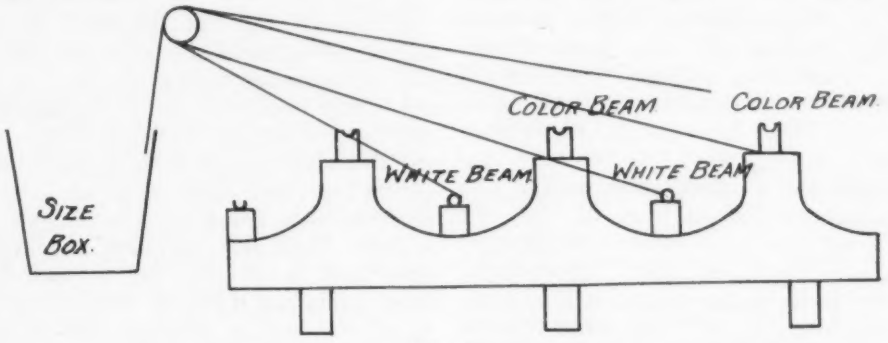

FIG. 1

stripe. Fix these bridges or contractors very near the size box, allowing as much space as possible for contracting the yarn from the section beams to the bridges. The effect is shown in Fig. 3, looking down on the warps before entering the size box. This will stop the yarn curling or crossing. When dipped in the size the threads will cling together side by side until the front of the slasher is reached.

When the yarn comes out of the size box it should not sag down between the size box and the first cylinder. A reasonable tightness here will ensure good results in front.

The next point in sizing hard twisted yarn is to see that the size has been well boiled. Nothing less than one hour will give good results. If it is necessary to have plenty of size on the warp to get a good weave, do not make the size thick, but allow the finishing squeeze roll to pass more thin size onto the warp. This will penetrate the hard twisted yarn better and by allowing more size to pass onto the warp will ensure better weaving. Much better results will be obtained if the size is kept at boiling point in the size box all the time the warp is running through, than by putting thick size on with little or no penetration.

"Warper" may not know how to fix the finishing squeeze roll so as to allow more size to pass onto the warp. The best way is to put on extra lengths of blanket so as to make the finishing roll feel as spongy as possible. I would suggest from 6 to 9 yards of the best all-wool blanket for this purpose.

Farnaby.

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SHRINKAGE OF HOSIERY IN DYEING

Editor Textile World Record:

Can you tell me what causes a shrinkage in length of hosiery dyed with a developed black? We allow for shrinkage, but after dyeing the top is about two inches short. We have been troubled with this for a week or more and were wondering if there was anything in the water to cause the difficulty. The recipe we are using for this black we sent you a few days ago with the question regarding reddish shade. Thornton (2258).

Cotton hosiery not only shrinks in length, but also in weight. The former shrinkage is a mechanical condition only, and can be traced directly to the amount of take-up in the yarn due to its twist, which greatly influences the result. Some yarns take up more than others, and the only way to get at the cause is to measure carefully the knitted hosiery before and after dyeing by the developing process, and preferably from yarns of different counts.

As a rule, cotton loses in weight about 5 per cent., not including the natural moisture.

Shrinkage due entirely to the result of dyeing depends upon the number of operations through which the hosiery passes. As the developed black process consists of three baths, it is probable that the shrinkage will be greater than if the dyeing process consists of only one bath. Berwick.

I do not see anything in the dyeing recipe that would cause the shrinkage in length. It is my opinion that the whole trouble lies in the increased twist in the knitting yarn. Have some of this twist taken out and I think "Thornton" will find the shrinkage will be reduced to a normal amount.

Beta Napthol.

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BLEACHING KNIT UNDERWEAR

Editor Textile World Record:

Is it possible to bleach underwear all made up without the collar and buttons and buttonhole stays on? If so, what is the simplest process for cotton and linen?

Can underwear be shrunk made up as mentioned above, that is, wool, worsted, cotton and linen, and what would be the simplest process?

Montville (2281).

Underwear can be bleached in shirt lengths sewed across the shoulders and with the sleeves sewed in, but not with the neck cut. If the neck is cut out the bleaching will pull the garment out of shape. I have found the following process to be a good one for cotton and linen: Boil in caustic soda at 2 per cent. for 6 hours, rinse thoroughly after boiling. Then give the goods a chloride of lime bath at 2° Tw. for one-half hour. Rinse again and then sour with oil of vitriol at 1° Tw. for 15 minutes. Rinse again. Soap in a laundry machine and rinse thoroughly, extract and dry. I have found it more practical to bleach in rolls.

A simple process of shrinking wool, worsted, cotton and linen underwear would be either by steaming or hot water baths. If the goods are to be steamed, an air tight room would be necessary, leaving the goods

in the room for three to five minutes with a steam pressure of about ten pounds. If the hot water bath is used, I would advise leaving the goods in the hot bath at 110° F. until thoroughly saturated, then extract and dry. Mohegan.

CALCULATED AND WOVEN WEIGHTS OF CLOTH

Editor Textile World Record:

We are making woolen cloth with 3360 ends, 75 inches wide on loom, 40 picks. The warp is 7 runs, and the filling 6 runs. These goods weigh on an average 12.2 ounces per yard from the loom. I calculate the weight as follows:

3360 ÷ 700 =	4.8
Take up 5%	.24
Warp	5.04
(75 × 40) ÷ 600, filling =	5.00
Calculated weight	10.04

The goods come from the loom 2.16 ounces per yard heavier than I calculate. What is wrong with my method?

These goods, weighing 12.2 ounces per yard from the loom, shrink 13 per cent. in length and weigh 11.2 ounces per yard, 55 inches wide when finished. Now what bothers me is this: A woven yard weighing 12.2 ounces, shrinks to .87 yard in length and 55 inches wide, and weighs 9 3/4 ounces, making a loss of 2.45 ounces. If the loss is 2.45 ounces for .87 yard it will be 2.81 ounces for 1 yard. But if a yard loses 2.81 ounces the finished weight would be (12.2 — 2.81) 9.39 ounces per yard. The finished weight is, however, 11.2 ounces. Please explain this discrepancy.

Melee (2282).

The difference between the actual weight and "Melee's" calculated weight may be due to one or two things. The allowance for take-up may be wrong, and the yarn may be heavier than the sizes given, 7 and 6 runs. The weight of goods from the loom depends, not on the yarn sizes and take-up assumed by a calculator, but upon the actual size to which the yarn is spun, and the actual difference (take-up) between the spun length and the length of the yarn as it lies in the cloth.

"Melee's" difficulty regarding woven and finished weights is due to a confusion of ideas. The loss of weight in finishing is 2.45 ounces for .87 yard finished, or 2.81 ounces for 1 yard finished. "Melee's" mistake is in thinking that the loss of 2.81 ounces is for 1 yard woven, when it is for (1 ÷ .87) 1.15 yards woven.

PRODUCTION OF GARNETT MACHINES

Editor Textile World Record:

What is the production of a garnett machine?

Catapult (2287).

Given the type of machine and a sample of the stock a definite answer would be easy but without knowing to which of seven types "Catapult" refers an answer is not possible.

The machine known as Class B with 30 in. swift and 24 in. doffer is stated by the makers to have a production (varying with the class of stock and width of rollers) as follows:

	lbs. per 10 hours
36 inch	130 to 600
48 inch	176 to 800
60 inch	220 to 1000

Wessex.

BRAZILIAN COTTON MILLS

Editor Textile World Record:

I have been informed that there are quite a number of men leaving England and going to Brazil. How can I get in touch with some of the mill owners of Brazil? I would like to go to some new country. Barkis (2286).

There has been a large increase in the number of cotton mills in Brazil; nine new ones were opened last year in the State of San Paulo alone. Probably this accounts for the movement of which "Barkis" has heard. English managers and overseers have been going to that country for many years past and obtaining good salaries and contracts. Living is excessively dear and the climate is especially unhealthy in the North. Warnings are continually being published against emigrating to Brazil on speculation. Some Englishmen have obtained jobs through the English correspondents of Brazilian manufacturing companies and through machine makers. Inquiries made in London fail to disclose any official or unofficial agency to which application could be made, but probably a list of Brazilian cotton mills could be procured through the consular agency. There are apparently about 500,000 to 600,000 spindles in the country and the production of cloth in San Paulo State was over 90 million yards last year. With their local supply of cotton, cheap labor and water and high tariff the mills are said to do well.

James Strand.

BLEACHING SKEIN YARN

Editor Textile World Record:

We are sending you a skein of yarn in the gray. On examination you will notice that there seems to be on this skein some small specks which so far as we can determine are small particles of cotton seed shell or bur. In our process of bleaching we are not able to remove these spots. We soak this yarn in the gray in tubs or vats that hold about 200 gallons of water, using 3 1/2 pounds of concentrated lye and 2 pounds of chipped soap, making this a bath for from 20 to 30 pounds of yarn. We bring this solution to a boiling point, and then after dampening the yarn in clear water we immerse the yarn in this solution and allow it to stand from 12 to 24 hours, after which we rinse it in two or three rinsings of clear water. What we would like to know is what process is used in removing these black specks, which show up much worse after the yarn has been bleached than they do in the gray. Are they removed by some chemical or by mechanical process?

Bleacher (2249).

The particles of shells and burs on the sample of cotton yarn submitted come from the cotton plant. These can be removed in the bleaching process if the yarn is treated in the right manner. "Bleacher" is simply putting the yarn through a scouring process and not a bleach. Of course, if it is desired to keep the yarn a brownish shade, the scouring process is the only method to use, but if the motes and ticks are to be removed the strength of the lye bath will have to be increased and no bleaching agent must be used to remove the black specks.

On the other hand, if the yarn is to be bleached white and have the specks removed, a bleaching agent should be used. There is the lime bleach, caustic bleach, chloride bleach and the peroxide bleach, any of which will remove the black specks, but the yarn will be snow white and not like a scoured yarn.

These specks can also be removed by a chemical process. "Bleacher" can keep right on with the process he is using, increasing the strength of the lye bath 1/2 a pound, making it 4 pounds instead of 3 1/2. After bringing this to the boiling point and immersing the yarn, keep the temperature as near boiling as possible so that there will be no agitation of the liquor in the bath. It is not necessary to keep the yarn in the bath over 7 or 8 hours. Keep the skeins as loose as possible in the bath vat. If this does not remedy the difficulty I would advise using the chemical process. If this is done I would recommend the use of chlorine, or as it is sometimes called, chemic, which can be used in conjunction with the process "Bleacher" is using at present. This would require another vat placed near the others so that after the steeping process is over, the skeins could be immersed in the chlorine bath at about 1/4° Be., then lifted out and put on a stage to age or until the chlorine had done its work in removing the seeds. After the chlorine bath the yarn should be thoroughly washed so that no trace of chlorine is retained, otherwise it will be necessary to give them an acid bath to neutralize the action of the chemic so that it will not rot the goods. Delco.

THE STRENGTH OF FORMIC ACID

Editor Textile World Record:

Please let us know how to get the percentage of formic acid by the most simple analysis.

Keokuk (2242).

The simplest method for ascertaining the strength of commercial formic acid is to take an accurately weighed quantity of the sample, say 15 grams, then dilute to 500 cubic centimeters with water; withdraw 50 ccs. equal to 1.5 grams, and with the addition of a few drops of an alcoholic solution of phenolphthaleon, titrate with a solution of semi-normal sodium hydrate until a definite pink coloration remains. The total amount of sodium hydrate consumed represents the "total acidity" in the sample, and besides real formic acid, may include mineral acids, chiefly hydrochloric acid, while acetic acid is not infrequently present in variable quantities.

Each cc. of the above used sodium hydrate equals 0.023 grams of formic acid, consequently multiplying the ccs. of sodium hydrate by the above factor, a figure is obtained that may be regarded for all practical purposes as being real formic acid.

If 55.4 ccs. sodium hydrate were used, the calculation for percentage strength becomes:

$$55.4 \times 0.023 = 1.2742, \text{ therefore}$$
$$1.5 : 1.2742 \text{ as } 100 : 84.94\%.$$

For making a rapid approximation of the strength of a sample of formic acid, use a

specific gravity hydrometer which costs about $1.00, and a hydrometer jar costing about 75 cents, and then use the following table. The usual commercial strength is about 85 per cent., and should indicate on the specific gravity spindle 1.19 (1.20 is close enough for mill work) or 40° Twaddell.

TABLE OF THE SPECIFIC GRAVITY OF FORMIC ACID SHOWING PERCENTAGE STRENGTHS

Specific Gravity	Percentage Strength
1.011	5
1.024	10
1.037	15
1.049	20
1.061	25
1.073	30
1.085	35
1.096	40
1.108	45
1.120	50
1.132	55
1.142	60
1.154	65
1.165	70
1.117	75
1.186	80
1.195	85
1.204	90
1.214	95
1.221	100

In making tests with this table, the temperature of the acid should be 68° F.

Kashgar.

SOFTENER FOR STARCH MIXING

Editor Textile World Record:

Please give me a formula for making a good white softener for starch mixings.

Finisher (2266).

I have found the following formula a good one for making a white softener for starch mixings:

10 gals. neatsfoot oil,
4 lbs. soda ash.

Stir soda ash into 4 gallons of hot water until it is clear and without lumps. Let the solution stand until it is lukewarm and then pour slowly into the oil and stir at the same time until it becomes a white creamy mass. If "Finisher" has a good soluble oil, try mixing a little in water and if it does not mix properly put in a little more soda ash, using just enough soda ash to make it soluble. This is good where the starch mixture has to be used cold or nearly cold. If, however, the starch mixture can be used hot, cocoanut oil, cotton seed oil, lard oil or tallow all make good softeners. Hector.

FORMULA FOR SCOURING

Editor Textile World Record:

I am about starting a two bowl scouring machine and would like some information in regard to the process of scouring. I am handicapped for room and can have only one bowl for scouring and one bowl for rinsing. Can you give me a formula for scouring in a machine of that kind? The wool is 3/8 to 1/2 blood. Albans (2255).

An excellent mixture for scouring the grades of wool mentioned is as follows:

100 lbs. potash soap,
160 lbs. pearl ash.

Boil with

200 gals. water

until the mixture is thoroughly dissolved. In preparing the scouring bath for very greasy wools, add 12 pails of this solution to the water in the first bowl. This is for a 300 gallon bowl. If the machine is of less capacity reduce the quantities proportionately.

If it is desired to prepare the mixture in smaller quantities the scouring bath may be made up with three pounds of soap and five pounds of pearl ash to each one hundred gallons of water. After an experience of many years with various detergents, I have found the use of urine substitute to give even better results than pearl ash. The proportions may remain as in the formula given, using the "sub" in place of pearl ash. The wool will come from the second bowl clean and with elasticity and luster unimpaired. It should not be necessary to caution "Albans" against excessive heat in scouring. The temperature of the scouring bath should never be over 125° F. or the working qualities of the stock may be materially injured.

It will be well to test each lot of scouring material before using, not merely to guard against paying for materials that have no

value as detergents, but to guard against materials injurious to the fiber itself. A few simple tests should be familiar to everyone. To test for free caustic alkali, place a drop of phenol phthalein on the soap and a pink color is at once developed if free caustic is present. To test for china clay, silicate of soda or earthy impurities, dissolve a small portion of soap in alcohol by the application of heat; the insoluble impurities will remain in their original form. Dissolve half an ounce of soap in pure water in a test tube, add an eighth of an ounce of dilute sulphuric acid and the mixture will be decomposed; the heavy impurities will settle to the bottom of the glass, the grease and resin, if any, will float. As the amount of impurities in wool varies greatly it is impossible to give one formula for a scouring liquor that will be applicable to all cases. The emulsion should feel soft and smooth when rubbed between the fingers. It can be tested by washing a small sample of wool by hand. Should the wool be elastic and lofty when the liquor is squeezed out and free from grease and dirt, the bath is in good condition. A final caution that should be unnecessary, but is of great importance: See that there is an adequate supply of soft water for scouring. Roan.

BLEACHING FLAX

Editor Textile World Record:

Enclosed find a sample of flax. Kindly inform me what process to use for bleaching these goods. You will notice the sample is a clear white and very absorbent. Manson (2222).

Flax to be bleached and made absorbent must first be treated in a manner similar to cotton. The first and most important operation is to remove all the lignine present in the fibers. This is done by boiling the tow for 8 to 10 hours in a 10 per cent. solution of soda in a circulating kier and under low pressure. Afterwards it will be found best to wash and then bleach with a chemick containing 4 per cent. of available chlorine. If the flax is intended for surgical purposes, the chlorine solution should be the hypochlorite of sodium, now easily made in every bleach house by means of liquid chlorine. It may also be prepared by the double decomposition of bleaching powder and soda ash. Owing to the slight harshness imparted to vegetable fibers by the lime bleach when subsequently passed through a vitriol sour, it will be found better practice to use the hypochlorite of soda method and sour with a weak muriatic acid. Afterwards wash thoroughly and if necessary repeat the chemicking and souring, and then giving a good wash with plenty of water.

Testing the wash waters to ensure complete removal of any free acid that might remain is essential. Some bleachers follow this washing with a light soaping and giving another thorough washing. It is better to give a longer boil in soda and to remove the major portion of the natural coloring matter of the flax than to slight the soda boil and endeavor to overcome the resulting defects in the bleach. If the absorbent flax is intended for surgeons' use, the final soaping should be omitted.

The plant necessary to handle this proposition is not very extensive, but in order to have a first class article, the apparatus installed must be ample in size to permit of fairly large volumes of solutions being employed. The most important apparatus is the kier, and next the dryers. An ample supply of water is very necessary.

Beta-Naphthol.

I would advise steeping the flax over night in a very weak solution of sodium hypochlorite, 1/8 to 1/4 Tw., following the next morning by a washing, weak souring and another washing in running water. This could be carried out in an ordinary hydro-extractor. No acid must be left in the water. In this way a pure white is produced without requiring any previous boiling out.

Raffaele Sansone.

Methods vary, but the main object is the same. Spinners wish to sell at least as much moisture as they buy and although there are other excuses for the practice the prevailing reason for adding humidity is beyond doubt. The time occupied in dispersing the moisture equally throughout the mass depends upon the circumstances of the case. The

drier the material is to begin with, the more thirsty it is. Bone-dry cotton yarn freely exposed to unhumidified air has been known to gain three per cent. in less than three minutes. The gain proceeds more slowly later and the time occupied in moistening cones uniformly naturally varies with the been introduced and have been described in this magazine. In one machine which is the goods to be used the next day. Ordito distribute itself on the journey to the knitting factory.
the whole of the yarn. The moisture is left

The old method of conditioning by storage overnight in a cellar with a watered floor and by laying-on wet canvas is still practiced in England. Other methods have made for the purpose the cones are sprayed ner in which they are exposed. The point would only be of practical importance had winding, the size of the cones and the mannarily this is not the case, at any rate with from pressure jets while traveling upon an apron. Half way through the machine the cones are automatically turned over and sprayed upon their other halves. Another method is to dip the cops in a cage into water and then leave them in airy surroundings to lose their surplus and become uniformly moist. Regent.

Absorbent flax is used as a substitute for absorbent cotton. As is well known, cotton is rendered absorbent by removing the gum by boiling in a closed kier. Treated in this way cotton is used for bandaging wounds. The objection raised to absorbent cotton is that it retains the heat, thus promoting fermentation and delaying the healing of the wound. Absorbent flax is a better conductor of heat and thus is not open to this objection. It is prepared from raw flax of which 50 to 60 pounds is left for 24 hours in a bath made up as follows:

1000 lbs. Water.
20 lbs. Caustic Soda.
5 lbs. Carbonate of Soda.
3½ lbs. Marseille Soap.

This bath is boiled until the ingredients are thoroughly dissolved. After the flax is removed from the liquor it is rinsed in running water for one-half hour. This process removes the gum and resinous material from the fiber. The material is bleached with chloride of lime, being immersed for 12 to 15 minutes or more in a bath at 120° to 140° F., made up as follows:

1000 lbs. Water.
8 lbs. Chloride of Lime.

The material should be stirred continuously while in the bleaching liquor in order that the bleaching may be uniform. The flax is then rinsed in running water for one hour. These preliminary operations of degumming and bleaching are carried on by ordinary methods.

The last part of the process which consists in rendering the flax absorbent, is the subject of a patent (French patent No. 453,500, April 4, 1912), granted to Marin. The bleached fibers are immersed for ten minutes in the following bath:

1000 lbs. Water.
100 lbs. Bisulphite of Soda.

The material is then extracted and rinssd in running water, after which it is immersed for 15 to 20 minutes in a bath at 104° F., made up as follows:

1000 lbs. Water.
20 lbs. Sulphuric Acid.

After this treatment it is rinsed in running water and treated in a bath at 140° F., made up as follows:

1000 lbs. Water.
15 lbs. Oxalic Acid.

This last treatment lasts for about 30 minutes, during which the material is frequently agitated in order to make the treatment uniform. After rinsing and drying the flax is perfectly absorbent, silky and lustrous. To sum up the operations the flax after being degummed and bleached is made absorbent by successive immersions in an alkaline bath and two acid baths. Gaul.

Tulle and similar fabrics can be made so that they are not spoiled by rain, and can be cleaned with a wet sponge, by impregnating it with an ordinary solution of collodion, to which enough amyl acetate has been added to make the drying slow.

Knitting Department

KNIT GOODS SITUATION

During the month of January the country in general has had a fairly good taste of cold weather which has been instrumental in reducing some stocks of heavy knit underwear in many centers and this has been reflected somewhat in the liberal purchases made for the season of 1914. A great many buyers have been in New York during the month and those manufacturers and agents interviewed have almost without exception stated that orders were placed freely and little quibbling was heard about prices that were asked.

Requests are being made for the early shipment of samples and buyers have stated that they expect to start their travelers out earlier this year than usual, although it must be evident that on account of the advance prices on popular priced lines of cotton goods that retailers will be liable to delay the placing of orders until they have seen several lines and had an opportunity to check back the increase in prices.

The more pronounced advances are apparent on men's ribbed and fleeced shirts and drawers. State made 11-pound ribs are sold generally at $3.75, although the Blood Knitting Co. of Amsterdam have sold up a good share of their production at $3.62 1/2. It is reported that one or two others have taken orders for large blocks at $3.70. 12 to 12 1/2-pound fleeces are quoted at $3.62 1/2 and 13-pound at $3.75 in a general way, but the Phoenix Knitting Co. of Little Falls have been offering some of their 12-pound goods as low as $3.50.

Fleeced suits for men are selling well and the Harrower Co. of Amsterdam have brought out a very creditable looking garment that they are taking orders on at $6.00 per dozen in Egyptian, Jaeger and two shades of grey.

Notwithstanding the general tendency of the consumers of the country toward lighter weight underwear, a heavy business is being done on these fleeced suits and we learn of some large orders being placed on the $7.00 grades, such as are made by the Union Mills, Oneita Mills and Utica Knitting Co. It is quite probable, however, that much of this business takes the place of the business hitherto placed on fleeced shirts and drawers, as made by the same concerns. At any rate, it shows a strong tendency toward the use of combination suits, even among the country trade.

A new line of men's ribbed suits in the market this season is that made by the Chalmers Knitting Co. These people have brought out a line of cotton and worsted numbers all made up in very attractive manner with wide yokes and English trim and are being offered only to old customers on the "Porosknit" lines and with the understanding that they must be sold to the retailers at certain prescribed prices and the jobber is allowed a rebate at the end of the season upon signing a statement to the effect that he has maintained the list prices. This concern requires that the jobber take some of the worsted numbers in order to get the cotton lines that go to the consumer for $1.00 garments.

Another class of men's combination suits on which there is an increasing business is the heavy wool and merino ribbed lines such as are made by the Bradford Knitting Co. of Bennington, Vt. and the Wright Underwear Co. of Troy, N. Y.

Buyers tell us that this business has increased very rapidly in the last few seasons, but at the same time say that it is taking the business from the shirt and drawer lines that had been made of the same character of fabric. These are being sold to the jobbers at from $12.00 to $21.00 per dozen, mostly in the silver grey and in some localities, a few whites.

A very satisfactory business has been booked by makers of flat wool goods, the number of which has become limited.

Prices remain the same as last year in most cases, but on account of the lower priced wool qualities have been somewhat improved.

There has been no change in prices of cotton ribbed vests and pants since our last issue, which is from $3.50 to $3.62 1/2 for silk trimmed lines, running from 7 1/2 to 8 pounds in weight. While we have not learned of any manufacturer being sold up, they appear to be well pleased with the conditions, having orders enough to run on for some months and confident of receiving duplicate business enough to take care of their production later on.

HOSIERY

Although there were a great number of hosiery buyers in the market during the past month, we learn that the amount of actual business placed was disappointing to many manufacturers and the general impression is that hosiery buyers have not placed orders for their season's requirements anything like as freely as the underwear buyers. There seems to be a feeling on the part of hosiery buyers that manufacturers have overshot the mark in putting present prices on cotton lines in particular. Many are predicting a lowering of these prices before long when manufacturers begin to realize more fully that quite a considerable portion of their output is still unsold. On the other hand, manufacturers point to the higher prices of yarns and to the shorter hours of labor and seek to justify present prices and give little evidence of any intention to reduce them.

Reports from the raw material markets show firm cotton with spots in better demand and it looks as if the buyers who are holding back are possibly making the same mistake that they did last year, when the opening prices were the lowest and a succession of advances occurred after the selling season opened.

One of the strongest conditioned lines of hosiery in the market today is children's low grade goods to retail at 10 to 15 cents. Manufacturers have obtained quite liberal advances on this class of goods and buyers have bought freely, so that today, several numbers are sold up.

Silk hosiery continues to be in good demand at all prices. Slightly reduced quotation on raw material from which the 25-cent grade of fibers are made is responsible for some slight reductions in the prices recently named by some of the less important manufacturers. A fairly good grade of fiber half hose was offered recently at $1.85 for which $1.95 was asked six months ago.

One important hosiery manufacturer in New Jersey has introduced in the market for fall delivery a line of ladies' goods made with cashmere boots and cotton tops. By so doing he is able to put in much better stock in the boot portion than by distributing it over the entire stocking. This method of making fibers and silks has been successful, but whether it will be in making cashmeres remains to be seen, as no doubt some of the trade will want the warmth to be obtained from the upper portion of a wool stocking.

Nolde & Horst are showing some new designs in silk goods on which buyers are placing orders quite freely. They are in the nature of two toned accordeons and made to imitate the French goods that have been retailed at four to five dollars per pair. These are being brought out to reach the consumer at one dollar a pair.

LACK OF DISCIPLINE IN THE MILLS

Editor Textile World Record:

I have read "Rutledge's" criticism of my experience in the December issue. The encircling flank movements are much easier to put in operation on paper than in a factory without the help of the general superintendent and manager. It has been my experience that as long as the production is kept up in such a mill, no thought is given to what the help does and how much surplus help there is. If one of these hands is laid off it will soon be found out that trouble will start. About 75 per cent. of the people smoked in the mill and when the general manager and overseers smoke at all times and in all parts of the mill, the mill help

think they can do the same. If "Rutledge" had any self respect he would have done just as I did, give his notice and get out. I did fail to get things working systematically, but the work I did was all right. I do not see how "Rutledge" could have done much better under the circumstances. For an overseer to be successful he must have the support of the superintendent and general manager. Denbigh.

EUROPEAN COMPETITION IN SWEATERS AND FANCY KNIT GOODS

The following letter from a well known importer of knitting machinery and a man who is thoroughly conversant with conditions in the American trade, will be of general interest. Mr. Nydegger was abroad in December and January and made it a point to study the market conditions, styles and prices from the view-point of the American manufacturer.

Editor Textile World Record:

The importer of knitting machinery is naturally as much interested in the effect of our new tariff law on our home industry as the producers of knit goods. In the face of things a reduction of duties on woolen knit goods, for instance, from an average combined rate of about 100 per cent. to a flat rate of 35 per cent. would naturally produce the impression that our home industry was going to have hard times fighting for their share of business against foreign competition.

To get at the facts, we will have to compare manufacturing and market conditions. American manufacturers have not depended on the highly protective Payne tariff in marketing their products; home competition was generally strong enough to hold selling prices way below the landing cost of the general line of foreign made knit goods, except in a few specialties.

The American knit goods industry, especially the fancy knit goods line, has made such rapid strides within the last ten years, that we have today better equipped factories, finer manufacturing organizations, speedier operators on machines, and particularly a far better organized selling force than can be found abroad. We have specialized, limited ourselves to the few practical articles and developed most of them to necessities. The buying power of our public is far greater, the demand more responsive to advertising and knit goods in general more popular. Our athletic recreations, the general use of automobiles in all seasons and our taste for out-door life in summer have opened up an unlimited field for sweater coats and similar sporting garments. We are a large people of similar requirements and taste, while the old Continent, with its small countries and varied races has correspondingly complicated requirements. Specialization is not as practical over there as here.

Our salesmen and advertising managers understood the importance of widest distribution of merchandise, therefore, pressed into service every clothing dealer, haberdasher and gent's furnishing store while the same tradespeople in Europe think it below their dignity to sell sweaters and sporting garments.

It is beyond doubt that wages paid in knitting mills abroad are far below our American standards, that raw materials cost less and are often of better quality; still the cost of production is not so very much below our figures, especially if we take into consideration the new price levels of woolen and worsted yarns, equally affected by the tariff. The average European knitting mill is equipped to make the largest variety of knit goods, from underwear and hosiery to sporting articles; efficiency of plant and labor is thereby seriously handicapped. The buyer of foreign knit goods will immediately notice a discrepancy between quality of material used and finish given to the article. This is particularly the case in the general lines of popular low priced goods.

The manufacturer abroad either does not use the proper finishing machines or his help is not efficient in getting best results. A sleeve set in askew, or a pocket carelessly patched on will spoil the best article.

The writer had an opportunity to go through various manufacturing districts in

Germany, examine the goods offered on the counters in France, Germany, Switzerland and Italy, and found a surprising quantity of low grade goods and only very few really well made articles that might tempt our taste. Good merchandise produced in the Chemnitz and Stuttgart district or made in Switzerland would occasionally be found, but the general run of articles produced in France, the Berlin, Breslau or Apolda districts, were of such style and finish that our home manufacturers can rest assured of their markets.

Winter sports in the mountains of Southern Germany, Switzerland and Austria have naturally attracted a varied sporting public, clothed in the variegated products of knitting machines. Brushed goods made up in sweaters, vests, caps, shawls, etc., are very dominant. Occasionally a girl will appear in a complete suit consisting of knitted skirt, sweater, cap, shawl and leggings to match. The colors are mostly bright red, purple, green or blue. Accordeon effects are not favored.

The well fitting American shaker and jumbo coat with shawl collars or rough necks is not to be seen; in fact, the European goods all lack the becoming fit around the neck. Hand knitted and crochet goods are still popular abroad and will be brought here in limited quantities. The same may be said of high grade silk sweaters bringing in our retail markets $14.00 to $20.00 each.

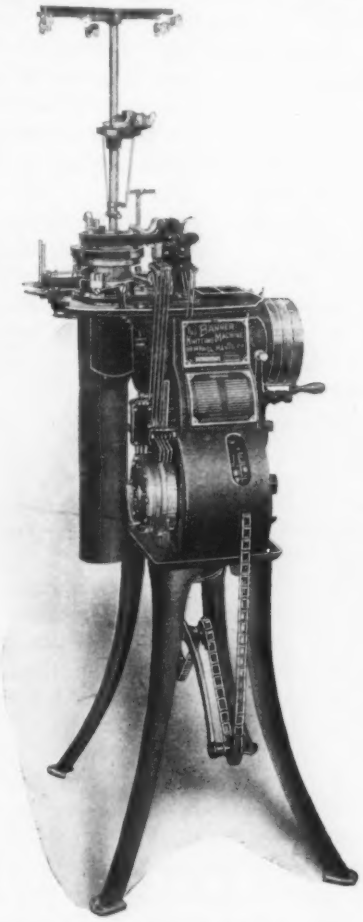
A number of American jobbers and importers have been scrutinizing the European knit goods market, partly for novelties, but mostly for a line of goods enabling them to compete against domestic products. Their disappointment was general; a big New York wholesaler stated on his return trip: "The thousand dollars I spent on this voyage was thrown away so far as business is concerned".

The bugaboo of foreign competition in our standard lines should thus have no further grip on our knit goods producers. Once normal business conditions return, they will be as busy as ever and continue to enjoy the prosperity of former years.

Max Nydegger.

THE NEW MODEL BANNER HOSIERY MACHINE

The new full automatic Banner hosiery machine, built by the Hemphill Mfg. Co., Pawtucket, R. I., is equipped for six changes of yarn levers, which are made of substantial thickness so that porcelain eyes



THE NEW MODEL BANNER HOSIERY MACHINE

can be used to the best advantage. The new machine is equipped with a novel device which makes it more suitable for plating any kind of yarns than it ever has been before. With the new plating device, it is not necessary to have the ordinary amount of tension on the yarn which is to be plated. As a result the device prevents a great

many breakdowns which would otherwise result from the tension on the yarn. The builders have adopted a single pick for the widening operation in making stockings. This device is simple in construction and positive in action and enables the speed of the machine to be increased from 15 per cent. to 20 per cent. when knitting the heel and toe.

A change in the high splice and double sole mechanism makes it positive for the yarn lever to draw the yarn in and out on the same needle. This makes a perfect line which is a very desirable feature in a high grade stocking.

The yarn ingauging device has also been improved. It is more positive and simpler in construction than the one heretofore in use. All parts of the machine are accessible from the front, which is a very important feature in connection with the fixing of a knitting machine. The connecting wires that were formerly inside the frame for working the yarn change levers have been dispensed with. In their place is an adjustable rod placed on the outside where it is easily accessible and can be adjusted without any difficulty whatever.

The improvements have been adopted by the Hemphill Co. after careful testing and are fully protected by United States and foreign patents. Over 15,000 of the Banner machines are now in successful operation, the bulk of them being in the leading hosiery mills of the United States. In the year 1913 the Hemphill Mfg. Co. have sold and delivered over 4,800 Banner machines, as compared with 3,700 in 1912. The Hemphill shops are equipped with the most improved machine tools and it is expected that the production will be five thousand machines for the year 1914.

The Hemphill new model split foot machine is giving the best of satisfaction in the mills where it has been installed and is highly recommended for split foot hosiery. The Hemphill Co. expect to have their new machine for making rib top with welt ready about March 1. This machine is a rapid producer of the double feed type. It can put in extra yarn so as to get the elasticity for the rib top and take it out when knitting the plain fabric. This is a great advantage for many grades of knit goods as it dispenses with the old method of transferring.

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KNITTING SEAMLESS HOSIERY

Editor Textile World Record:

In reply to the article signed "Pete" in the December issue of this magazine, I have always considered a 3 3/8 inch diameter the right size for making children's stocking legs, because a 2 3/4 inch diameter will make a stocking not more than 1 3/4 to 2 inches in width, unless the fabric is knit loose. My statement that a fine gauge stocking is made on a machine having 85 needles in both cylinder and dial naturally means 85 needles in the cylinder and 85 needles in the dial. I am afraid we will all have to wait a long time before 1/2 needles can be used.

Because "Pete" thinks goods made from from yarn dyed black is a thing of the past he is very much mistaken. Many concerns are today manufacturing the best grade of hosiery from yarn dyed black. Although it is more difficult to top and knit it takes a good knitter to overcome the difficult things and get good results, whereas a second rate knitter can usually make good with the easy processes of knitting.

In the class of hosiery I have been in the habit of making, the lengths stated are correct, because the majority of manufacturers try to save an inch or so on the length of children's hosiery. The customer that buys them is not satisfied and will, as a rule, look for the stockings that are the longest in the leg. It does not always pay to go by a set rule, such as the length of the stocking should be three times the length of the foot. Experiment and see if a little longer stocking would not be better.

Where I have stated in manufacturing two and one rib hosiery that I use two needles in the cylinder to one in the dial, I still maintain that this is correct. I am sorry that I was not more explicit in not mentioning feet, but I thought this article would be read by knitters who had experience enough to know that when saying ankle, heel and

toe, that a foot would have to be made between the heel and toe. I do not think "Pete" ever gained anything by aggravating his knitter by not topping quick enough for him as I imagine he would be the loser when he got his pay envelope.

I stated that a machine contained 208 needles with sinkers between each needle, and I do not see how "Pete" could read it as a sinker between one needle. I did not say a machine produces 4 to 6 dozen a day, what I did say was that the topper doubles over 60 stitches at the back. This work is rather difficult and one girl can do only 4 to 6 dozen a day with four cylinders or two machines. It takes three toppers and one knitter for six machines and if each girl tops 6 dozen a day the production would be only 18 dozen. As a rule one girl does about four dozen.

I hope I have convinced "Pete" that my mistakes are not as numerous as he thinks. In the future, it would be to his advantage to read an article more carefully before making such absurd comments on it.

Laramie.

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A PIECE WORK SYSTEM FOR BATHING SUITS

BY SEDALIA

There are very few manufacturers of bathing suits whose output is large enough to warrant an extended piece work system. Such a system depends on the size of the mill and output per day. As in other lines, one of the essentials to installing a piece work system is the arrangement of the machines. This arrangement should be made so that the operators will not have to leave their machines unless it is necessary and also so that the work will go through the mill without any interruption.

The following arrangement of machines should be carried out whenever possible: 1, seamers; 2, overseamers; 3, hemmers; 4, trimmers and menders. There will have to be enough machines to balance the output; for every three seamers there should be one overseamer and one hemmer, and so on in proportion. I have found by experience that this number of machines will keep the output running steadily along without accumulation ahead of any one operator.

I would suggest that a table be built at the end or very near the sewing machines to accommodate the trimmers and menders. The number of trimmers and menders also depends on the number of machines and should be worked with the same idea of keeping the work progressing. Where the knitting machines are in fair condition and where shoddy stock is not used, I would advise having for every three seamers, one overseamer and one hemmer, two trimmers

PIECE WORK TICKET No. 316.

ORDER. NO — TICKET NO.

MDSE. NO — AMT

COLOR.

OTHER INFORMATION.

SIZES	28	30	32	34	36	38	40	42	44	46

	OPERATOR NUMBER	TICKET NO	OPERATION	STYLE	AMOUNT
PRESS & FOLD		316	Press & Fold		
INSPECT		316	Inspect		
TRIM & MEND		316	Trim & Mend		
HEM		316	Hem		
OVERSEAM		316	Overseam		
SEAM		316	Seam		
CUT		316	Cut		

FIG. 1. A WORK TICKET

and one mender. This will balance the work very well and cause no delay in finishing.

In small mills the menders can inspect, but this is not advisable where the output is more than ten dozen per day. Wherever possible it is advisable to have inspectors look the garment over after it is finished and before it is pressed. For the position as inspector I found that the best results are obtained by having a middle-aged woman and not a young girl, as the latter are inclined to be partial and have favorites among the operators.

As the system usually depends on the out-

put I have found the following plan works out successfully:

The card system which can be adapted for any size mill. This system is carried out by means of work tickets which are printed on tags, shown at Fig. 1. These should be filled out in the office and should be stamped in ink, as this is much neater and prevents any changes or alterations by the operators. I would advise that all work be sent in either dozen or half dozen lots. This gives a uniform system and saves considerable time for the time-keeper and also in making out the piece work tickets. This ticket serves as an order and should be kept with the work during all processes of finishing. Each operator clips the ticket of the operation she has performed and writes her number in the space opposite. This enables one to have a complete factory record of who has performed each operation, and thereby making it easy for the inspectors to hold careless operators responsible for their mistakes. The operator saves the tickets she has clipped until the end of the week when they are placed in an envelope and given to the forelady or dropped into a box conveniently built at the exit of the sewing room.

This system can also be worked out by having tickets with gummed backs and giving each operator a book. When the operator slips the tickets she pastes them in the book and at the end of the week turns her book into the office. The books are then figured up by the time-keeper, the tickets marked "void" and the book returned to the operator at the beginning of the next week. This last I have found to be the best system as there is hardly a chance of an operator losing a ticket. This system has proved very simple and requires very little extra clerical help to install it.

Operation	Amt	Time Commenced	Time Finished	Total Time	Order Number

FIG. 2. A PAGE IN A DAY BOOK

	Shirts					Trunks				
	Sleeveless Plain	Sleeveless Trimmed Armhole	Sleeveless Trimmed Armhole & Bottom	½ Sleeve Plain	½ Sleeve Trim Sleeves & Bottom	Plain	Trunks Trimmed Bottom	Trunks for Skirt Suit	One Piece Suit Plain	One Piece Suit Trimmed Armhole & Bottom
Cutting										
Seam	.09	14	20	15	26	15	.20	.15	.25	33
Overseam	.06	07½	10½	8½	12½	8	14	.10	12	22
Hem	15	12	.06	14	.06	.16	10	11	17	.06
Trim	.10	.08	03	10	03½	.08¾	.06	.06	10	.04½
Mend										
Press & Box.	.06	.06	.06	.06	.06	.06	.06		.08	.08

FIG 3. A TIME SHEET

I have found the following system to be well adapted for very small mills where the output is too small to keep operators on any one operation. In mills of this kind there is usually quite a lot of time work for each operator. It is very necessary to keep a record of this, as it will in time cause a loss to the mill in production and also in money paid for labor. This system is kept by the

use of day books, which are kept by the forewoman. The pages of these books are printed as shown at Fig. 2. Whenever an operator starts an order the forewoman marks down the amount, the order number and the time when begun. When the operator finishes the order the time finished is also marked down by the woman. The time work is kept in the same way. This prevents any loss of production and gives a complete record of the work of each operator. It is also a very good way to find out the cost of production in the sewing room.

Fig. 3 shows one of these time sheets made out, the prices having proved very reasonable both for the operators and manufacturer. The cutting and mending operations have been placed as time work. I think this advisable as these operations require the most care and are very hard to regulate on piece work. Such operations as pinning the trunks in skirt suits, overseaming them in, and making buttonholes and sewing on buttons will invariably have to be put on time work.

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The imports of all textile raw materials into the United Kingdom during 1912 amounted to 5,277,517,379 pounds, valued at $661,479,406.

NAPPING TUBULAR KNIT GOODS

The single and double napping and felting machines, shown in the accompanying illustrations, are built by the Maschinenfabrik Arbach, Reutlingen, Germany, for napping and felting tubular knit goods, A. W. Buhlmann, 200 Fifth Ave., New York, being the sole American agent.

The single machine Fig. 1, has twenty-four raising rollers. The shrinkage of the goods is reduced to a minimum by a special driving arrangement and the use of suitable expanders. The goods are napped and felted by one passage through the machine and on the wide machine two or three pieces can be raised simultaneously. A box is provided for receiving the flocks from the goods.

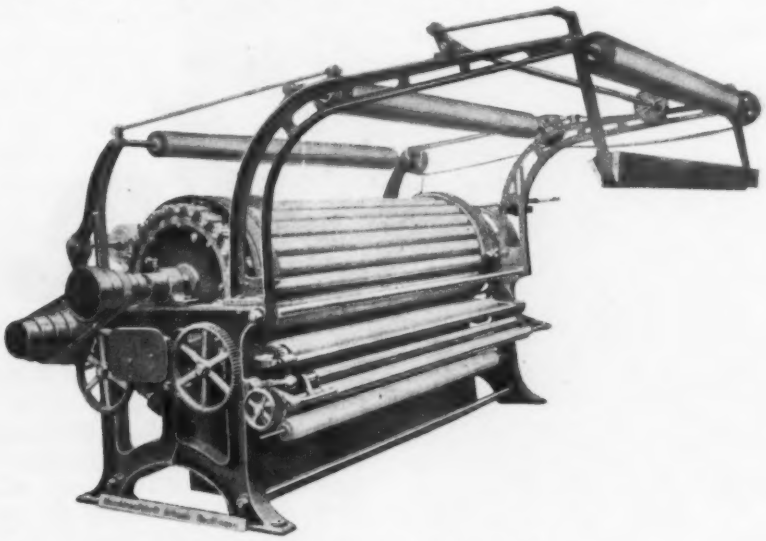


FIG. 1. A SINGLE NAPPING MACHINE

The double machine, shown at Fig. 2, has two superimposed cylinders each equipped with twenty-four raising rollers. Tubular knit fabrics can be napped on both sides at one passage through the machine. An exhaust fan removes the flocks and lint from the machine, keeping the air of the room free from fibers and preventing the accumulation of flyings around the machine and work room.

The action of the rollers on the goods is regulated by hand at one side of the machine

by means of two handles. The rollers can be instantly thrown out of contact with the goods by shifting a lever. The chains used for transmitting the power between different parts of the machine are noiseless and ensure positive action and a uniform finish. The tension on the goods is kept uniform by a special device, this being very important in producing regularity of results.

The belts driving the napping rolls are kept in contact with the pulleys so as to maintain a constant speed. The bearings of the cylinder shaft are provided with bronze bushings and a reliable device for oiling. The machines are of substantial construction, the materials and workmanship being of the best. Further information can be obtained on application to the American agent.

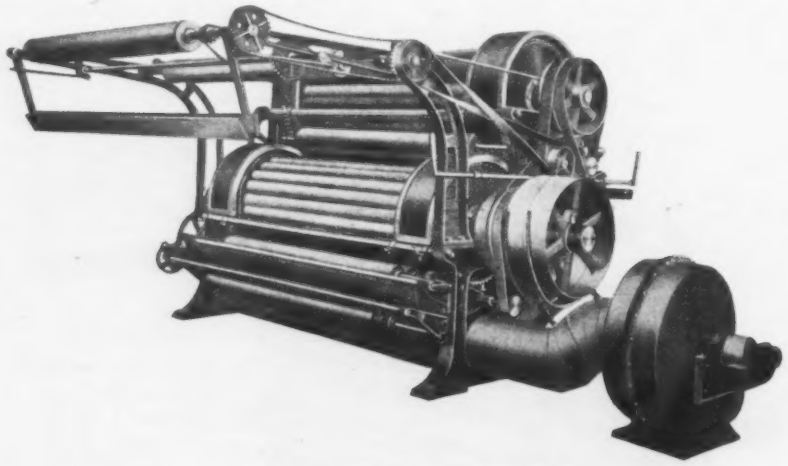


FIG. 2. A DOUBLE NAPPING MACHINE

STANDARD SIZES OF SWEATERS

Some time ago the Jobbers' Association of Knit Goods Buyers, which is an auxiliary of the National Wholesale Dry Goods Association, appointed a committee on scale of sizes of sweaters, composed of the following members: C. W. White, Chairman, John V. Farwell Co., Chicago, Ill.; R. W. McQuiston, Pittsburgh Dry Goods Co., Pittsburgh, Pa.; George P. Walton, of the J. M. Robinson, Norton Co., Louisville, Ky.; Benjamin Gibbs, of Young, Smyth, Field Co., Philadelphia, and T. M. Webster, of Carleton Ferguson Dry Goods Co., St. Louis, Mo.

At the meeting of the Association in New York on January 12, the committee announced that they were not prepared to make a final report, but that they had adopted in a tentative way the following scale of sizes for men's sweater coats and boys' sweater coats:

MEN'S SWEATER COATS

Chest.	Width.	Length.	Sleeve.
34	16	27	21
36	17	28	21
38	18	29	22
40	19	30	22
42	20	31	22
44	21	32	23
46	22	32	23

BOYS' SWEATER COATS

Chest.	Width.	Length.	Sleeve.
24	22	18	13
26	25	19	13½
28	27	20	14
30	29	21	16
32	30	23	19
34	32	24	20

The linen industry pays poorer wages than any other textile industry of the United Kingdom. The latest figures available are for 1906, which show that full-time workers in the cotton industry average $4.77 a week; in the woolen and worsted industry, $3.83; in the jute industry, $3.47, and in the flax industry only $2.02.

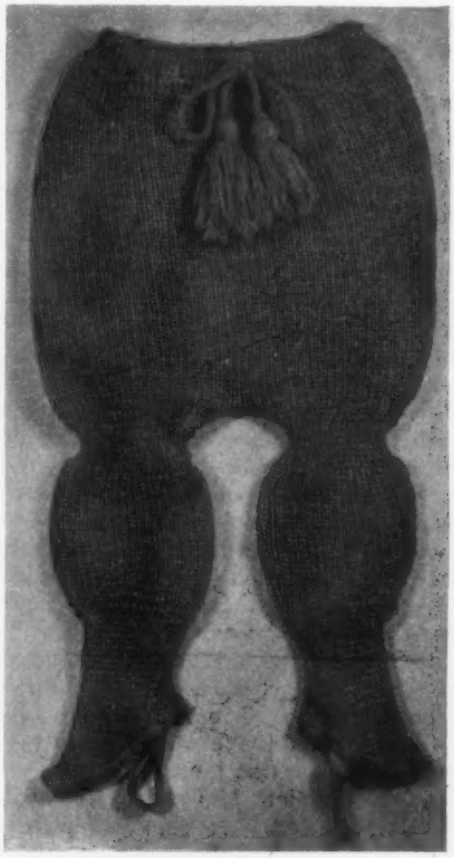
KNITTING CHILDREN'S LEGGINGS

BY DELMAR

Another useful article of wearing apparel for infants and children up to five years of age is the knitted leggings, usually put on outside of the regular clothing. They are made in various ways in full fashioned and cut. Both worsted and woolen yarns are used. The legging shown in the illustration is made out of worsted and cotton yarn on a circular latch needle knitting machine, cut to shape and seamed up on an Overlock sewing machine with trimmer attachment. This requires only one operation. If it was done on a plain trimmer sewing machine it would have to be covered with a twin needle covering which would add to the cost of manufacturing. This size can be made to good advantage on a 6-feed latch needle machine with an automatic cam changer to make the tuck and plain stitch. The legging was made on an 8-inch, 6-feed machine, cut 96 needles in the cylinder and 96 needles in the dial with three ends of cotton and three ends of worsted yarn.

The worsted yarn is placed on the machine so that it will come on the tuck feed, bringing it to the face of the garment where the machine is knitting the tuck stitch. The chain for this drawer is usually built so that there will be about 2 1/2 inches of plain stitch to turn for the hem at the top of the legging. Then there is 9 inches of tuck for the body with 2 inches of plain stitching starting the leg, followed by 4 inches for the knee and 5 inches of plain for the lower part of the leg and foot. When this is taken off the machine and laid on the table rolled up and shrunk, it is cut to shape, making sure to have 9 inches from the top to crotch of legging, which is the standard for this garment. The feet are then cut to shape. When this is done the garment is ready to seam and turn up the hem. The feet are finished on a crochet machine. A small piece of tape or oilcloth fastened on the bottom holds the legging in place when worn.

The waist cord can be made in different ways by hand or machine. The tassel is made by drawing a number of worsted strands through the cards and tying them around with two or three strands of yarn after the hem is turned. This garment can be made from 2/22s and 2/24s woolen yarn, also 2/44s worsted. If half cotton and half worsted is wanted, a 2/10s cotton with a 2/18s or 2/20s worsted yarn can be used, or



CHILD'S LEGGINGS

a 3/20s worsted yarn can be used. This article sells to the jobbing trade at $3.00 to $3.50 per dozen for all wool, or half cotton and worsted. All worsted garments sell for $4.50 a dozen and must not weigh over 3 or 3 1/2 pounds a dozen.

In England during the 16th century a law made it obligatory that for every sixty acres of land tilled one had to be devoted to flax growing.

Dyeing, Bleaching, Finishing, Etc.

THE BICHROME QUESTION

BY CULEBRA

As every dyer knows, the practice of the dyehouse does not always follow authority. The books say one thing persistently and the dyer does the other thing just as persistently. All over the world the dyer is conservative and does not believe in leaving an old rut which he knows well to follow a shorter and possibly easier path on which he would be an uncertain traveler. This leads to some paradoxes of daily practice and one of them is the choice between the bichromates. The color maker and the technical journals insist that the bichrome used should be bichromate of potash or at any rate it is the potash salt that is nearly always given in recipes. The latest edition of the finest standard work on dyeing that has ever been published in any language states that the potassium salt "has now been replaced almost entirely by sodium bichromate." This is too strong a statement; the potassium salt is still largely used in some large dyeing centers for reasons which will be touched upon later.

Both are inexpensive but the sodium salt is apparently the cheaper and is certainly the more soluble and is therefore much more widely employed. We say apparently the cheaper because that is a question we propose to examine without taking it for granted. Of course if, other things being equal, precisely the same results can be obtained with 4 pounds of commercial bichromate of sodium as with 4 pounds of commercial bichromate of potash there is no more to be said on the question of comparative cost. Are the same results obtained? Whether the advantage is on one side or the other there are many reasons why they cannot be.

Chrome iron ore, which is an abundant and cheap material, is the starting point for both the bichromes. So far they start level. But the potassium salts are rarer in nature and therefore cost more than the corresponding sodium salts. As a set-off the potassium natural salts are all fairly pure, while the sodium salts are not. In the case of potassium bichromate the chrome iron ore is heated with potash and lime, and in the presence of the oxygen of the atmosphere chromates of lime and potassium are formed. On treatment with sulphuric acid bichromates of potassium and lime are formed and the latter is converted into the potassium salt by treatment with potassium carbonate.

$$CaCr_2O_7 + K_2CO_2 = CaCO_3 + K_2Cr_2O_7.$$

In the case of sodium bichromate the chrome iron ore is fused with soda ash and chalk, the mass is lixiviated and sodium chromate crystallizes. The crystals are dissolved and converted into bichromate with sulphuric acid. The ordinary commercial form is in crystals but there is also a partially dehydrated compound on the market.

It will surprise many dyers to learn that the use of bichromes is of comparatively recent date. Smith in his well known "Dyers' Instructor," written shortly after the introduction of the aniline colors, states that he was the first to use what he calls "Chrome or bichromate of potash" in the Halifax district. Napier in his "Manual of Dyeing," published in 1853, says that bichromate of potash "has been very extensively used of late as a mordant for a variety of colors upon woolens and is entirely superseding several of the old processes of dyeing many of the ordinary shades which were very tedious in manipulation." He states that bichromate of sodium had been tried and found wanting because of its impurity and its tendency to effloresce.

O'Neill, in 1862, gives the same testimony. He says that "bichromate of potash is the chief and only trustworthy chromate for the use of the dyer and printer". He states: "The samples of yellow chrome

salts (bichromate of soda) that I have had occasion to test or examine have varied so much in quality and actual value, and are so easily adulterated, that I would advise having nothing to do with them unless their quality can be satisfactorily ascertained."

It will be seen therefore that bichromate of potash was not in general use in dyeing before the middle of the last century, and that the soda salt did not come into serious competition with it until much later.

As a matter of fact when the aniline colors were in their infancy, the use of bichrome in dyeing was confined mainly to cutch and the wood colors and especially to logwood. Now it is the most important of wool mordants and has plenty of uses in the cotton dyehouse. Its employment has steadily increased of late years since the comparatively recent introduction of the useful class of wool colors that may be mordanted beforehand, or dyed in one bath with bichrome and color, or aftertreated with bichrome.

Sodium bichromate is more soluble than the chromate. It very readily dissolves even in cold water; 100 parts of water at 60° F. dissolve 109 parts of sodium bichromate. Potassium bichromate does not dissolve readily in cold water; 100 parts of water at 60° F. dissolve slightly over 9 parts of potassium bichromate. The saturated solution contains very little over 9 per cent. of potassium bichromate.

As quick and easy work means money, solubility is probably the reason that bichrome in the dyehouse means the sodium salt. The very easy solubility hints at deliquescence and as a matter of fact sodium bichromate is very deliquescent, which potassium bichromate is not. Deliquescence has some drawbacks from the point of view of storage certainly, but not sufficient to set off the great advantage of easy solubility.

Here the sodium salt would have the advantage if the pure sodium and potassium salts are taken into consideration and neither contained water of crystallization. The simplest way of pointing this out is to calculate the percentage of chromium in each

$$K_2\ Cr_2\ O_7\ 294,\ Cr_2\ 104$$
$$Na_2\ Cr_2\ O_7\ 262,\ Cr_2\ 104$$

The pure potassium salt thus contains slightly over 35 per cent. of chromium and the pure sodium salt without water of crystallization not quite 40 per cent. It is the commercial salts that the dyer has to deal with and in this case the advantage is with the potassium salt. It is one of the purest dye house materials on the market and when properly made it is almost chemically pure and without water of crystallization. At the worst it contains a small proportion of potassium sulphate when this is allowed to crystallize out simultaneously with the bichrome in the process of manufacture.

Neither salt, as far as the writer's knowledge goes, is ever deliberately adulterated, but the commercial sodium bichromate is never chemically pure. It always contains the chromate, sodium sulphate and other salts and water of crystallization, very frequently in more than sufficient quantities to set off completely the molecular advantage of even the pure sodium salt noted above. The presence of normal chromate must be reckoned a disadvantage as it is a much poorer mordant than the bichromate, into which, however, it is converted at the expense of an extra addition of sulphuric acid to the dye bath. The ordinary dye house crystals also contain two molecules of water, which in itself just about balances the percentage of chromium:

As a matter of fact the salt as delivered at the works usually contains still more water.

With the reservation that each batch of commercial bichromate of soda should be tested in the works whereas the potash salt can be passed without examination, the advantage seems to be on the side of the soda salt, where at any rate it can be obtained fresh. It may be taken that 101.6 parts of pure bichromate of soda replace 100 parts of the potash salt. With equally pure salts available it is now generally acknowledged that there is a difference in effect and that the advantage is on the side of the potash salt. It is known that with some colors, as

for instance certain styles of aniline black, the potash salt produces the purer shade. This part of the question seems to be worth careful investigation. In a small way the writer has made some experiments. He made a dozen pair of dyeings, each pair worked together in the same dye bath, but one mordanted with bichromate of potash and the other with a carefully weighed equivalent of the soda salt. These dyeings were then submitted to a first class colorist. His judgment, however, was not very conclusive, nine of the potash mordanted dyeings were selected as the better shade, and three of the others. The colorist was not informed which was which, and he acknowledged that there was not much choice between any pair of dyeings.

However, the question seems to be worth going into much more deeply and an appeal for investigation is the purpose of this article, as it is the dyer who can obtain the soda salt fresh from the works and is not obliged to stock large quantities may be advised to use it. On the other hand, if the dyer is far from the chemical works and must stock large quantities of his drugs and dyewares, he will probably find it advantageous in the long run to use the potash salt.

IMITATION WOOL

A number of manufacturers by mercerizing jute in caustic soda give the fiber an appearance similar to that of wool. "La Nature" announces that M. Villedieu has recently discovered a similar process for giving a woolly appearance to hemp and jute. He immerses the fibers in a cold solution of caustic soda at 20° Be., containing 2 per cent. of bioxide of sodium and 1 per cent. of sulphated oil. The fibers swell, become flexible and soft and curl up. The product is well suited for making blankets or stuffing mattresses. It also has a bleaching effect on the fiber. After treating in the caustic solution the material is immersed in an acid solution and then well rinsed.—L'Industrie Textile.

Of some 3,000,000 spindles in the world working on flax, Ireland contains nearly a third.

A COTTON DYE HOUSE AND BLEACHERY

From Uhlands Technische Rundschau.

Translated from the German by the Editor of the Textile World Record.

The plans of a cotton dye house, bleachery and storehouse are shown in the accompanying illustrations. Figs. 1 to 4 and 9 give the ground plan, cross section and longitudinal section as well as the front of a commodious cotton warehouse. The ground plan is in the form of a trapezoid, the building having three stories connected by a stairway next to the slanting side of the building. A spur track of the railroad delivers the raw material to the door of the storehouse. The bales are loaded from the cars on to trucks on which they are carried to various parts of the building. An elevator for carrying the material from one story to another is located in a tower. The rooms are dry and well ventilated to keep the material in good condition. The building is built of wood and iron, being only partially fireproof. The roof is built of iron girders, 3/4 in. by 1 in., resting on heavy wrought iron posts, set on piers. The roof is made of wood and cement, braces running out from the posts as shown at Fig. 1.

Figs. 5 to 8 show plans of a cotton bleaching, mercerizing and dyeing plant which is designed to economize space, enable the work to be done economically, and give proper hygienic conditions. As is well known, the fog in dye houses and bleacheries is a source of danger to the operatives owing to the inability to see the machinery clearly. Moreover the moisture-laden air is injurious to health, particularly when the fumes of acids and alkalies are also present. The steam and fog cannot be removed entirely from the workrooms, but much can be done in this direction by means of ventilators and suction fans. This has been the object in equipping the plant shown at Figs. 5 to 8. It is built for a daily production of 1,100 pounds of bleached cotton, 1,100 pounds of dyed cotton, and 1,300 pounds of mercerized cotton. The ground area of 4,760 square feet is very small, but the building can be enlarged on either side. It is of wood and iron construction.

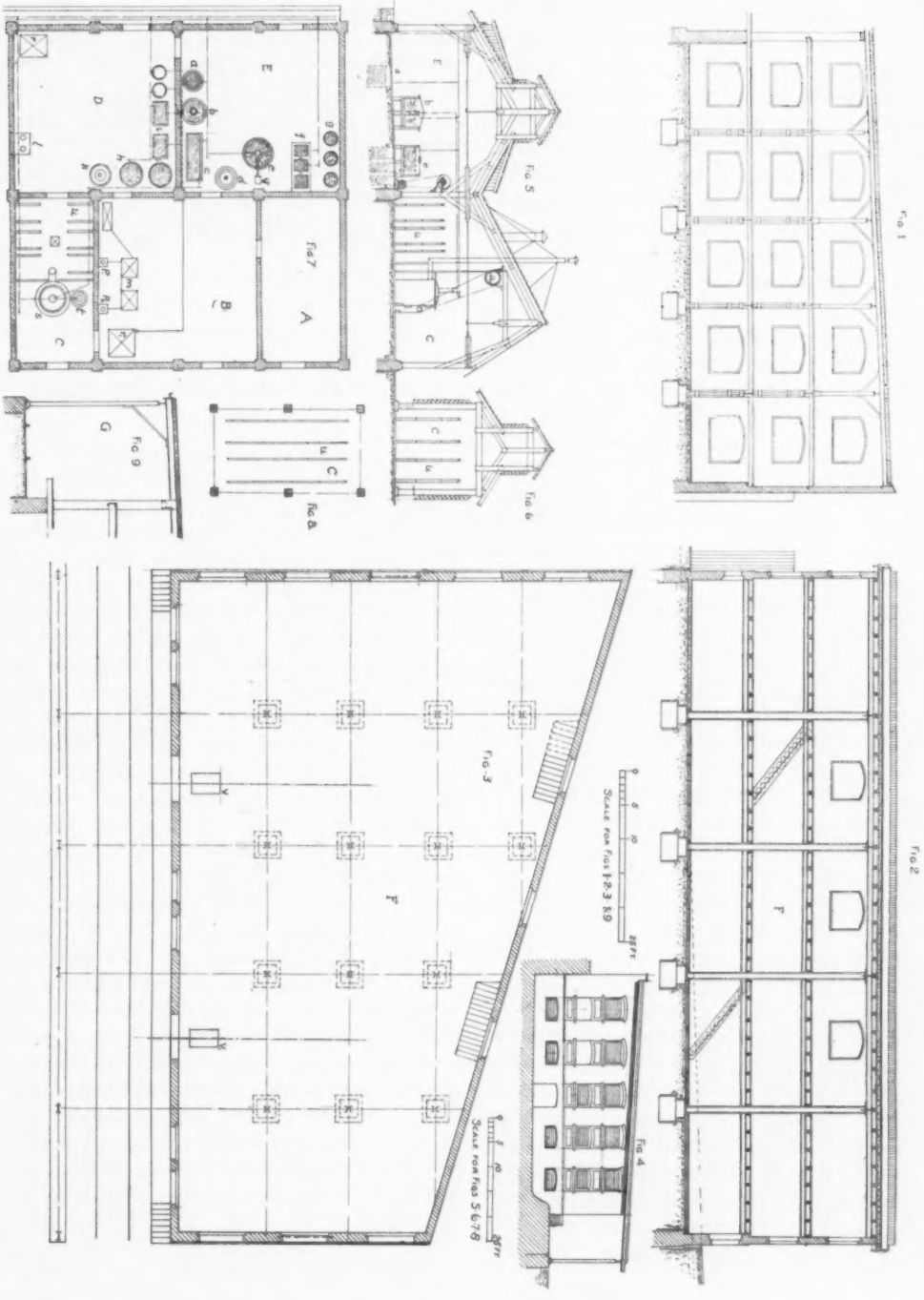


Fig 1
Fig 2
Fig 3
Fig 4
Fig 5
Fig 6
Fig 7
Fig 8
Fig 9
Scale for Figs 1.2.3 & 9
Scale for Figs 5.6.7.8

The roof is supported by red pine posts with iron girders. The red pine resists the action of acids and has the advantage over iron that the water condensing and falling from the ceiling does not cause rust spots.

The dyeing and bleaching rooms are ventilated through the lattice work in the roof. As there is no steam in the mercerizing room the ventilation is effected by hinged windows which can be readily opened when desired. The posts supporting the building rest on cement piers. The outside walls and partitions supporting the bleachery, E, the dye house, D, the drying room, C, mercerizing room, B, and the room, A, used for storage, office and laboratory, are of reinforced cement construction. The ground floor consists of a coating of special cement, 3/4 inch thick on a foundation of ordinary cement, 3 1/4 inches thick. The floor of the dye house and bleachery is inclined slightly so that the waste liquor and water will run into the drain.

Figs. 6 and 8 show the drying room, having a ground area of 570 square feet and built separate from the main building. The floor is level and well stamped down, and treated with an acid to prevent the material from absorbing moisture. The woodwork in the roof and the lattice work are of red pine. Good ventilation is obtained through lattice work in the side walls. The interior wood work of the drying room is red pine. The air is renewed by opening ventilators and windows. The machinery is driven by a 10 h. p. steam engine, the steam boiler having a heating surface of 190 square feet. The boilers are supplied with water from the reservoir, r, by means of a pump, l.

The equipment of the bleachery consists of a chloride of lime tank, f, and reservoir, a, for the solution; an extractor, d; an alkali tank, b, heated by a steam coil under a false bottom; a tank, c, which can be heated if desired; the chloride of lime tank, e, having a false bottom, the circulation being obtained by means of the centrifugal pump; and the tank, g, for dissolving and mixing the chemicals.

The equipment in the dye house consists of a hydro-extractor, k; a tank, h, for black dyeing; and a tank, i, for fancy colors. Copper pipes are used for heating the dye liquor. There are also tanks for washing and rinsing. In addition to the large tubs which are used for the bulk of the work, there are a number of smaller dye tubs for coloring the small batches.

The mercerizing room is equipped with a mercerizing machine, m, having a production of 1,300 pounds per day; a singeing machine and a calender, also a tank in which the caustic solution is stored. The drying room is fitted for drying undyed or dyed cotton with or without artificial heat.

BLEACHING RED STRIPE TOWELING

BY HECTOR

Some time ago I was a bleacher at a mill where we had a big run on toweling. The goods were made with red stripes and we were having some difficulty in bleaching. The white came out all right, but some of the stripes were a dark, dirty red, others would have very little color left in them, while others would come out all right. I put up the old argument that the goods had all gone through the same process and that if the yarn had been dyed all alike that the goods would come out of the bleaching process all right. At the same time I started in to find the cause of the trouble. I reduced the boiling solution, but that did not give the desired result. Then instead of boiling the goods eight hours, I boiled them six and this time the red stripes looked a little better, but the white was not good. The next kier I boiled the old way and reduced the chloride of lime bath, giving the goods more time. I also reduced the sour bath, but this did not improve the appearance any. By this time I came to the conclusion that the only remedy was in the dyeing of the yarn. The superintendent told me to try another kier. Instead of putting the goods through the chloride of lime bath first I put them through the sour bath and then washed them off. I never had heard of this being done before, but the goods certainly came out all right. I continued bleaching them the same way with satisfactory results.

MILL EXPERIENCES

Under this head we will publish from time to time stories from practical mill men, telling of vexatious and unusual difficulties which have occurred in different branches of mill work, and how they have overcome them. We invite mill men to send us an account of such experiences. We pay, of course, for all that we use. Facts told just as you would tell the story to a friend are what we want, not fancy writing.

EXPERIENCES OF A DYER

BY AMAZON

Some experiences in a dye house in the Southwest may prove of interest. The dye house, situated in a small city, was engaged in the dyeing of skein yarns. The cotton yarns are mostly carpet warp yarns used by farmers' wives in making rag carpets. These yarns are dyed in three hundred pound batches in long tubs, four men at each tub. The men dye six hundred pounds per hour in standing dye baths with direct colors. On this class of work the four men do twenty lots per day. On the finer yarns, 2/20s or 2/30s, four men do four hundred batches of two hundred pounds each. Very little yarn is dyed for the knitting trade.

Besides the large tubs for dyeing the large lots, there are small tubs for dyeing lots of one hundred, fifty and twenty-five pounds each. After dyeing, the yarn is put on horses without rinsing and allowed to cool, and then extracted. The extractors are engine driven, one is used for light shapes and the other for darker shades. The dyeing is done by direct steam over night. In the morning the yarn is baled or spooled or put up on bundles as required by the customer. The worsted yarns are dyed in tubs, also in one two-hundred and fifty-pound machine.

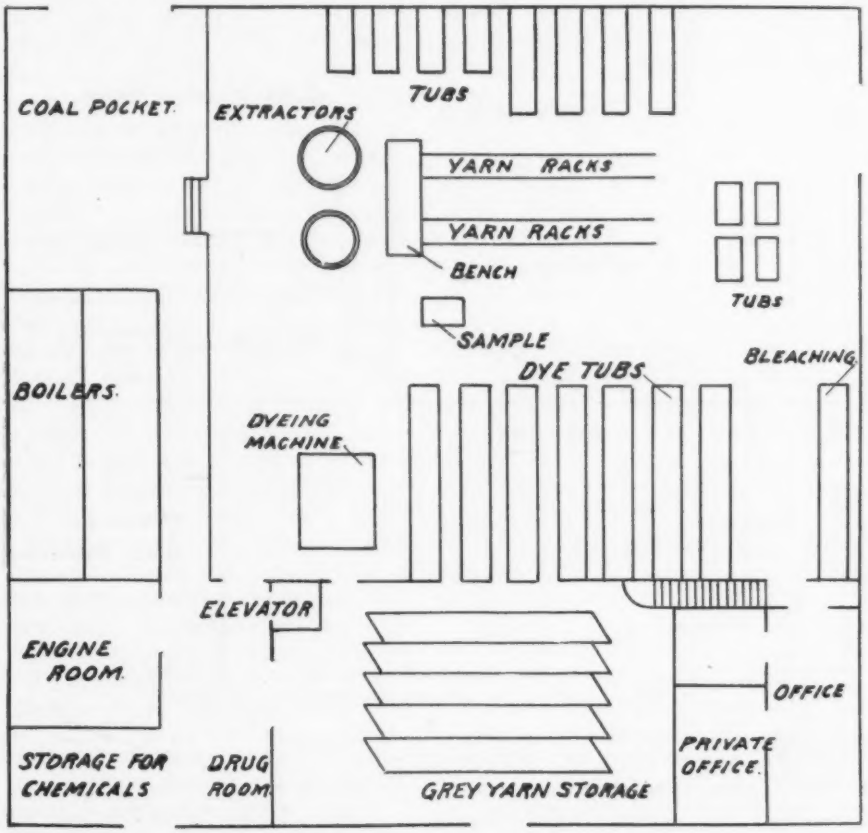


FIG. 1. THE GENERAL LAY-OUT OF THE DYE HOUSE

The help are mostly Hungarians and Poles with a few Germans. The hours of labor are sixty per week, or from 7 to 12 A. M. and from 12.30 to 5.30 P. M. each day, no half holidays. The men are allowed beer four times each day, at 8.30, 10.30 A. M. and at 1.30 and 3.30 P. M. The boy collects the beer pails and brings in the beer, which costs being paid $15 a week, the teamster $17 a week and the extractor man $15 a week.

The power plant consists of two boilers and an engine. The mill is lighted by electricity throughout. The spooling is done on both Universal and Foster winders. The water for the dye house is heated by exhaust steam and as far as economy is concerned the plant

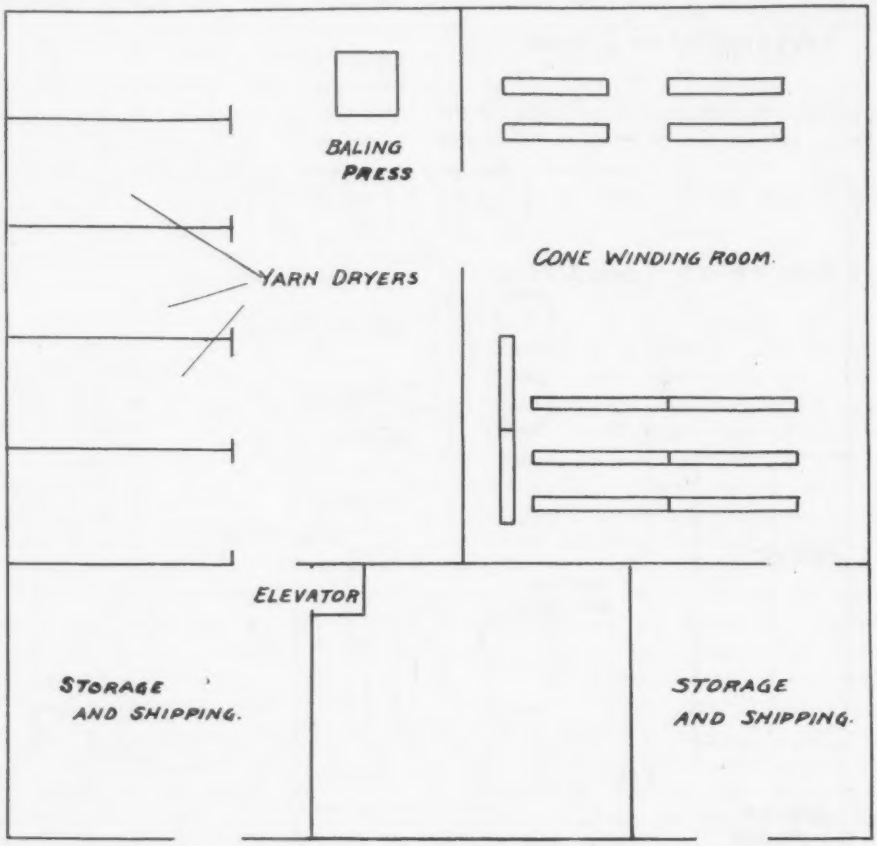


FIG. 2. SHOWING THE ARRANGEMENT OF THE YARN DRYERS

5 cents a pint. The men are also allowed to smoke as often as they please.

Some may think that this privilege of drinking and smoking results in poor discipline, but I have had many years' actual experience in dye houses here in New England and have never seen a dye house where the men worked so faithfully or so hard, no time being allowed to change clothes or to wash up. The wages are high, the yarn hands compares very favorably with the best dye houses in the Eastern states.

Fig. 1 shows the general layout of the dye houses and the arrangement of dye boxes, drug room, store-house, engine room and boiler house. Fig. 2 shows the arrangement of the yarn dryers, cone winding, packing and store rooms for spooled and dyed skeins. The work can be handled with the least possible labor and lowest cost.

SLASHER BLANKETS AND COTTON WARP SIZING

BY FARNABY

It is generally understood among slasher tenders and overseers of slashing that it is almost, if not altogether, impossible to size cotton warps with one kind of size and get good results where there are light, medium, and heavy picked goods to make. The usual method is to make at least two or three kinds of size for the different picked goods. This practice of making several thicknesses is wrong. It is generally believed that reasonably thin starch or size penetrates the yarn better than a thicker size. When a heavy picked cloth is to be made penetration is necessary with a reasonable amount of size as a coating on the yarn. Take as an illustration a cotton warp that has 40 picks per inch requiring about 8 per cent. of size, 80 picks requiring 10 per cent., and 120 picks requiring 12 per cent. The size should be well cooked in the kettle for about one hour. The 40 pick fabric with 8 per cent. of size is an easy weave and only requires a light sizing. Apply to the finishing roll in the size box a fine woolen blanket. This will press back the surplus size and only allow a small quantity of size to pass on to the warp. Use a coarse blanket when sizing for the 80 pick goods. This will allow a correspondingly large quantity of the same size to pass to the warp, giving better penetration. When sizing for the 120 pick cloth with 12 per cent. of size, use a blanket of a still coarser texture so that more size will pass to the warp. All that is necessary in sizing for different fabrics is to use blankets of different qualities.

The blankets taken from the rolls are boiled out and used again. If three different kinds of blankets are used, fine, medium and coarse, they will last three times as long as when only one is used. The best blankets are all wool and made with a 2-ply warp.

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The great bulk of the flax manufactured in the United Kingdom is of foreign growth, chiefly Russian. In 1912, for instance, there was an import of 195,054,720 pounds of flax and 42,228,480 pounds of flax tow.

PREPARING COTTON FOR DYEING AND BLEACHING

A process for preparing cotton for dyeing and bleaching has recently been patented in this country, the following account being given by the inventor: Heretofore, it has been customary to take the cotton directly from the bale and introduce it into a dye or bleaching keir. In this case the dyeing or bleaching has been irregular; that is, the dye or bleach has not permeated all the parts to an equal degree. This was due to the irregularity of degree of compression of the fibers that always exists in a bale of cotton. By the described method a great percentage of waste was entailed, because of the quantities of dyeing or bleaching material absorbed by the dirt and foreign matter present in cotton in the bale. The object of this process is to overcome these disadvantages.

The operator takes the cotton from the bale and beats it up, removing the particles of dust and dirt and loosening the fibers uniformly throughout. The next step is to form this loose cotton into a lap comprising the fibers that are loose, of uniform density and non-parallel in relation to each other, and irregular in position. The next step is to superimpose one or more of these laps, similar to the lap just described, one upon the other with a non-adhesive moisture such as water intermediate the surfaces of each of them, and compress these laps into a compound lap which will be, therefore, of uniform density throughout, and the fibers of which will be still non-parallel and irregular. Sections of this compound strip are now torn off and packed in flat or roll form in the keir, where the liquors in the keir will penetrate the compound lap thoroughly and uniformly, reaching every fiber, since the condition of the cotton will permit uniform accessibility to every fiber throughout the mass. The moisture is such as not to interfere with the diffusion of the dye or bleach throughout the mass.

In preparing the cotton, there is no drawing operation, whereby the fibers would be straightened. A reason why such a step is avoided is that should the fibers lie parallel

with each other in the mass, they would become matted together by the irregular pressure involved in packing the cotton in the kier. In introducing moisture between the surfaces of the laps in this process, it is found advantageous to introduce the same in the form of a spray; and the introduction of this moisture is found to assist in condensing the several laps into a compound lap. The spray, furthermore, facilitates a uniformity of condensation due to the resultant uniform distribution of moisture over an extended area

Dye Recipes

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 13

RED ON WORSTED DRESS GOODS

Red on 100 lbs. worsted dress goods. Prepare the dye bath with

3 lbs. Amazo Brilliant Red 6 B.
(American Dyewood Company, 80 Maiden Lane, New York, N. Y.)
3 lbs., 3⅗ ozs. Amazo Brilliant Scarlet L.
3⅗ ozs. Amazo Violet 4 B O.
20 lbs. Glauber's Salt.
2½ lbs. Sulphuric Acid.

Enter at 120°, raise to boil in 20 minutes and boil one hour or to shade.

The above colors are noted for their level dyeing qualities and their good fastness to light and are recommended for all classes of wool dyeing.

Recipe No. 14

BROWN ON WORSTED DRESS GOODS

Brown on 100 lbs. worsted dress goods. Prepare dye bath with

14⅗ ozs. Amazo Blue.
(American Dyewood Company, 80 Maiden Lane, New York, N. Y.)
1 lb., 6⅗ ozs. Amazo Red Extra.
13⅗ ozs. Amazo Yellow R.
20 lbs. Glauber's Salt.
2½ lbs. Sulphuric Acid.

Enter at 120° F., and bring to boil in 20 minutes. Boil one hour or to shade.

The above colors are recommended for all classes of acid dyeing, as they are of satisfactory fastness to light.

Recipe No. 15.

BLUE ON WORSTED YARN

Alizarine Cyanole B B on 100 lbs. worsted yarn. Prepare the dye bath with

1 lb. Alizarine Cyanole B B.
(Cassella Color Co., 182 Front St., New York, N. Y.)
15 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter at 120° F., bring to a boil and dye at a boil for one hour.

Alizarine Cyanole B B is characterized by its great brilliancy and good fastness to light.

Recipe No. 16

GREEN ON WORSTED YARN

Naphtalizarine Green D O on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Naphtalizarine Green D O.
(C. Bischoff & Co., 451 Washington St., New York, N. Y.)
10 lbs. Glauber's Salt.
6 lbs. Acetic Acid.

Enter at 140° F., dye at a boil one hour and then exhaust bath by adding

3 lbs. Sulphuric Acid

and continue boiling a while longer. Afterchrome for 3/4 hour in the same bath to which has been added

2 lbs. Potassium Bichromate.

Naphtalizarine Green D O is recommended for wool dyeing where fastness to light and fulling is desired.

Recipe No. 17

YELLOW ON COTTON YARN

Chlorazol Fast Yellow A G on 100 lbs. of yarn. Prepare the dye bath with

3% Chlorazol Fast Yellow A G.
(Read Holliday & Sons, 11 Gold St., New York, N. Y.)

Dye in the usual manner with the addition of Glauber's salt.

Chlorazol Fast Yellow A G possesses excellent fastness to light, milling, acids, alkalies, stoving and scrooping.

Recipe No. 18

RED ON COTTON YARN

Zambesi Red 8 B on 100 lbs. cotton yarn. Prepare the dye bath with

4 lbs. Zambesi Red 8 B.
(Berlin Aniline Works, 213 Water St., New York, N. Y.)
20 lbs. Glauber's Salt.
1 lb. Soda Ash.

Dye at a boil for one hour, being careful that the bath does not cool down during the dyeing process. Rinse and then diazotize and develop with beta naphthol by working 1/2 hour in a cold bath made with

4 lbs. Nitrite of Soda.
10 lbs. Sulphuric Acid (168 Tw.).

Then wring or squeeze, rinse and work for 1/2 hour in a cold bath made with

1¼ lbs. Beta Naphthol,
1¼ lbs. Caustic Soda (76 Tw.).

and then wash.

Zambesi Red 8 B when dyed and developed as indicated above, possess good fastness to washing, and its fastness in most other respects is good, being faster to light than primuline.

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Recipe No. 19

GREEN ON COTTON YARN

Triazol-Green B P on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Triazol-Green B P.
(Geisenheimer & Co., 189 Front St., New York, N. Y.)
20 lbs. Glauber's Salt.

Enter at 180° F. and dye at a boil one hour. Triazol Green B P possesses good fastness for a direct cotton color.

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Recipe No. 20

GREEN ON WORSTED YARN

Acid Green Y Y on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Acid Green Y Y.
(Innis Speiden & Co., 46 Cliff St., New York, N. Y.)
10 lbs. Glauber's Salt.
2 lbs. Sulphuric Acid.

Enter at 120° F., raise to a boil, and dye at a boil for one hour.

Acid Green Y Y is a level dyeing acid color well suited as a self color and in matching.

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Recipe No. 21

BLUE ON COTTON YARN

Tannin Discharge Blue B B X on 100 lbs. cotton yarn. First mordant the yarn with tannin by working for 1/2 hour at a boiling temperature in a bath made up with

5 lbs. Tannin Acid (or its equivalent in tannin extract)

and allowing it to steep in the gradually cooling bath over night. Wring and without washing work for 1/2 hour in a cold bath made up with

1½ lbs. Tartar Emetic,

and then wash.

The yarn is then dyed in a bath made up with

1½ lbs. Tannin Discharge Blue B B X.
(Badische Co., 86 Federal St., Boston, Mass.)
¼ lb. Acetic Acid.

Entering at 100° F., bring the temperature to 140° to 160° F., and working at this temperature for one hour.

Tannin Discharge Blue B B X will be found an excellent ground color for discharge work in calico printing.

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Recipe No. 22

BLUE ON WORSTED YARN

Alizarine Direct Blue E S B on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Alizarine Direct Blue E S B.
(Farbuerke Hoechst, 122 Hudson St., New York, N. Y.)
10 lbs. Glauber's Salts.
4 lbs. Sulphuric Acid.

Enter at 140° F. and dye at a boil for one hour.

Alizarine Direct Blue E S B possesses excellent fastness to light. Its fastness to washing and milling is increased by after chroming, but the shade becomes greener and duller.

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Recipe No. 23

RED ON COTTON YARN

Chlorazol Brilliant Bordeaux R H. Prepare the dye bath with

3 lbs. Chlorazol Brilliant Bordeaux R H.
(Read Holliday & Sons, 11 Gold St., New York, N. Y.)

Dye in the usual manner.

Chlorazol Brilliant Bordeaux R H possesses excellent fastness to light, washing, leveling and alkalies.

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Recipe No. 24

YELLOW ON WORSTED YARN

Fast Wool Yellow 3 G L on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Fast Wool Yellow 3 G L.
(Kalle & Co., 530 Canal St., New York, N. Y.)
1 lb. Sulphuric Acid.
10 lbs. Glauber's Salt.

Wet the yarn out and enter at 105° to 125° F., bring slowly (in about 30 minutes) to the boil, boil 45 minutes and add

1 lb. Sulphuric Acid,

and boil another 30 minutes.

Fast Wool Yellow 3 G L possesses exceptional fastness to light.

New Machinery and Processes

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to the textile manufacturers. It is not a list of patents but of improvements on the market, the idea being to present to our readers a systematic monthly record of new machinery, etc., of interest to textile mill men.

Whenever possible we endeavor to make a personal investigation of the new machinery and processes described in this department. In the absence of such personal investigation we must necessarily rely upon information obtained from those who control the machines and processes.

We invite machine builders and others to send us such information for this department.

Doffing Ring Frames. James Hope, 15 Quai de la Bourse, Rouen, France, is placing on the European market a device for lowering the rail of a ring frame when the cops are full ready for doffing.

Self Feed for First Breaker Cards. Cliffe & Co., Huddersfield, England. An improved self feed for first breaker cards which embodies a number of improvements.

Conditioning Oven. Wilsons & Mathiesons, Ltd., Leeds, England. An improved apparatus for conditioning textiles. It is gas heated and complete in itself, consisting of two fans, one for supplying fresh air and the other for removing the damp air, a heating chamber, a reheater and a conditioning oven.

Drawing-Off Rollers for Noble Combs. Taylor, Wordsworth & Co., Leeds, England, have recently adapted an improved method of mounting the drawing-off rollers of Noble combs, by which the rollers are kept in exact alignment. The longer spindle is the driver as usual. The spindle for the loose roller is carried in a slide block in which a hole serves as a bearing for the end of the spindle of the loose roller. The block is enclosed by a hollow cylinder which serves as a guide.

Pneumatic Beetling Machine. J. & E. Arnfield, New Mills, England, have recently placed on the market a new model of their pneumatic beetling machine, embodying a number of improvements.

Let-Off Motion. James Hempseed, Dunfermline, Scotland. An improved let-off motion for looms by which the friction at both ends of the beam can be easily applied or released by the weaver when standing in front of the loom.

Portable Elevator. Wilhelm Stoehr, Offenbach a.M., Germany. An improved portable elevator for piling goods in storehouses or elsewhere.

Hair Cloth. Fernand Leriche, Epehy, Somme, France. A process of manufacturing cloth of horsehair and flax for the stiffening of garments.

Moistening Warp on the Loom. Albert Zumbruch, Erkrath, near Duesseldorf, Germany. A device for moistening warp yarn during the process of weaving. It consists of a hollow whip roll half filled with water, which is carried to the yarn by two felt covered rolls through a slit in the fixed whip roll.

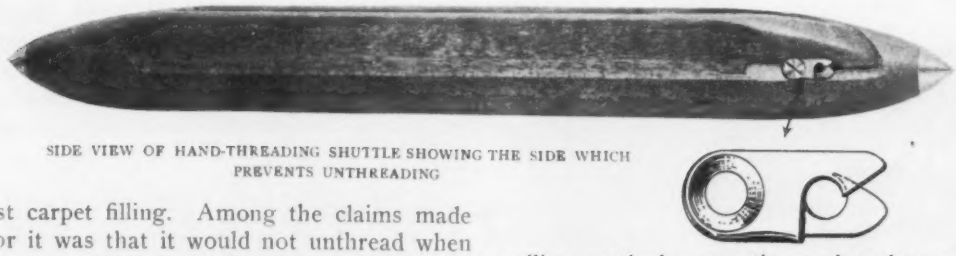
Yarn Printing Machine. Otto Hallensleben, Hanau, Germany. A yarn printing machine in which two printing rolls are passed diagonally over the yarn which is under tension.

Dyeing Machine. Vorwerk & Co., Barmen, Germany. An automatic dyeing machine in which the liquor is forced through the material.

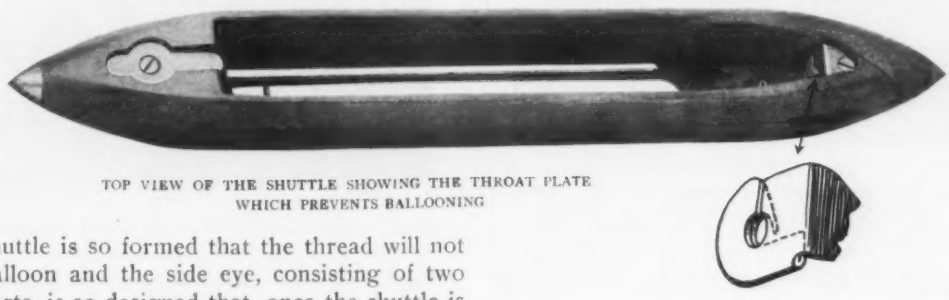
Soap Chalk. Thomas C. Felley, 3 Center St., Winooski, Vt. Chalk made of soap for marking defects in woolen and worsted goods before dyeing and finishing. The soap chalk is made in a variety of colors adapted for both light and dark goods and is designed to obviate the difficulty that is often encountered from the use of ordinary chalk which frequently leaves indelible marks on the goods after they are finished.

AN IMPROVED HAND-THREADING SHUTTLE

In 1911 the American Textile Specialty Machinery Co., 670 Eddy St., Providence, R. I., announced the satisfactory results which had been obtained from a new hand-threading shuttle, designed to handle yarn of any size from the finest silk to the coarsest carpet filling. Among the claims made for it was that it would not unthread when the yarn ballooned. This shuttle has been still further improved, as will be seen by the accompanying illustrations. The latest improvement is the invention of an expert loom fixer and has been thoroughly tested in several large mills. The chief advantage claimed for this improved hand-threading shuttle is that it is proof against unthreading as well as ballooning. The throat plate through which the thread passes from the



SIDE VIEW OF HAND-THREADING SHUTTLE SHOWING THE SIDE WHICH PREVENTS UNTHREADING



TOP VIEW OF THE SHUTTLE SHOWING THE THROAT PLATE WHICH PREVENTS BALLOONING

shuttle is so formed that the thread will not balloon and the side eye, consisting of two parts, is so designed that, once the shuttle is threaded, it cannot unthread. The shuttle allows room for the insertion of felt to provide tension on the yarn and any accumulated lint can easily be removed.

This shuttle enables manufacturers in Massachusetts to comply with the law forbidding the use of the old style shuttle, through which the yarn had to be sucked, thus causing the spread of disease. It is not only a sanitary shuttle, but also one that can be threaded more rapidly than the old unsanitary styles. Moreover this hand-threader cannot be sucked, as is the case with many of those on the market.

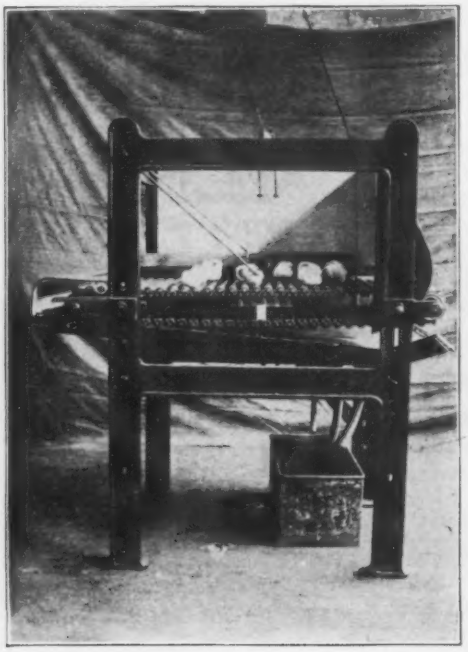
THE WRAY MACHINE FOR CONDITIONING COTTON AND WORSTED YARN

In our January issue we gave a description of the Wray yarn conditioning machine, calling particular attention to its advantages for restoring the normal amount of moisture to worsted yarn. This machine is equally well suited for the conditioning of cotton yarn in hanks or on bobbins.

The illustration shows the interior of the machine and the arrangement for turning the hanks while the yarn is in process of conditioning. Ample space is allowed for moving the hanks and the turning is accomplished by a brass spring, turning the rod which comes in contact with the hanks.

The importance of keeping the moisture in cotton and worsted yarn at the normal amount is so great that no spinner can afford to neglect giving attention to this matter. With the thermometer at zero on the outside of the mill, and a working temperature of 70° inside, cotton in process of manufacture contains only 1 part of water to every 100 parts of dry cotton, whereas

the recognized allowance is 8 1/2 pounds of water for every 100 parts of dry cotton. Failure to maintain the moisture in cotton yarn at the 8 1/2 per cent. standard has a most serious effect on the finances of a yarn mill. Take for example, 10,000 pounds of cotton yarn containing the normal amount, 8 1/2 per cent., of moisture. If this quantity of yarn is spun with only 1 per cent. of moisture under the atmospheric conditions



THE WRAY CONDITIONING MACHINE WITH SIDE REMOVED SHOWING INSIDE ARRANGEMENT FOR TURNING OVER HANKS OR BUNCHES

named above it would weigh only 9,308 pounds, a loss to the spinner of 692 pounds. Moreover, the size of the yarn would be changed materially. If the size was 60s, with the normal amount of moisture, it would be 64 1/2s with 1 per cent. of moisture. On the other hand, if the mill spins this yarn to 60s with 1 per cent. of moisture it will reel 55.8s when the normal amount of moisture, 8 1/2 per cent., is restored to the material. This illustrates not only the serious financial losses, but also the disarrangement of yarn sizes that result from a failure to restore the natural amount of moisture to yarn made of cotton, worsted or other textile materials. Edward Jefferson & Bro., 117-123 South Second St., Philadelphia, Pa., are the American agents for the Wray machine.

COUNTERS FOR TEXTILE MACHINERY

The application of counters to textile machinery is extending all the time, not only because of the convenience of automatic registration of work done, but because of the growth of the custom of paying for what is actually done.

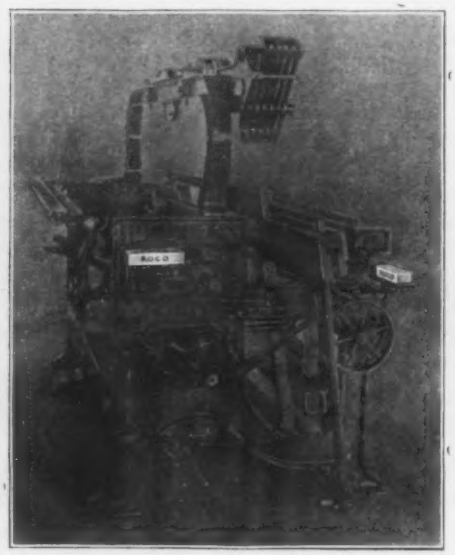


FIG. 1. THE "ROCO" COUNTER ON A WHITIN LOOM

Fig. 1 shows two applications of the counter on a Whitin loom. One counter registers the number of yards and is driven from the sand roll by two bevel gears. The other is a pick counter which is driven from the crank shaft and registers every thousand picks. The counters are entirely independent and either one or both may be used as desired. The style shown in the illustration is known as the "Roco" counter, manufactured by the C. J. Root Co., Bristol, Conn. They make a variety of different styles for

use on looms, balling machines, twisters, dressers, folders, printing and rolling machines, tenter frames, warpers, slashers, etc.

A recent application is in connection with knitting machines. Fig. 2 shows the Elm City type of counter, manufactured by the same concern, attached to a Leighton knitting machine. The mechanism is so arranged that the counter registers the number of sweaters turned out. It is very easily attached with a special bracket furnished and has proved to be very useful for this purpose.

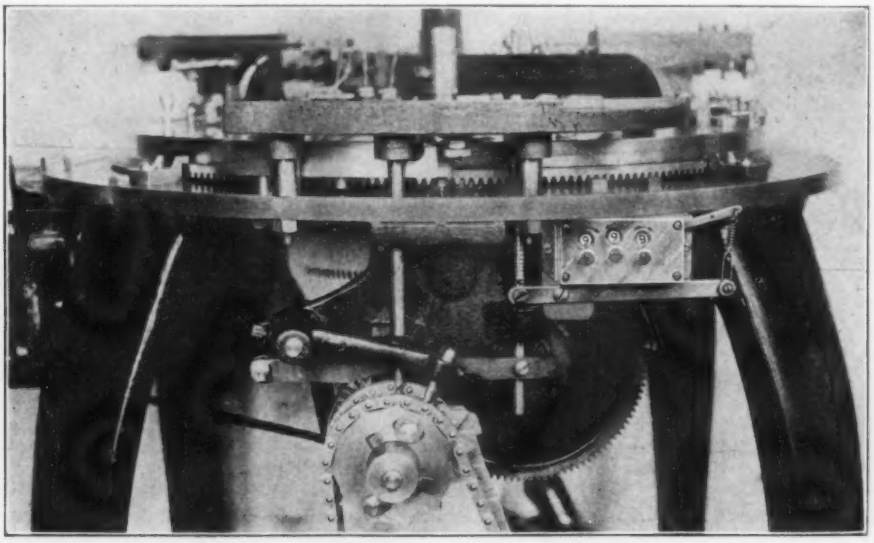


FIG. 2. THE "ELM CITY" TYPE OF COUNTER ON A LEIGHTON SWEATER MACHINE

The use of counters in the textile business has been an interesting study of each particular requirement so as to apply the counter in the most convenient way to give the best results. So many different textile applications have now been made that the manufacturers have previous experience to go by, but they are always willing to study the best means of adapting them for new purposes or to explain to manufacturers the uses that other manufacturers have found advantageous.

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Flax spinning machinery was invented in 1787 by John Kendrew and Thomas Porthouse, at Darlington, England.

SOFT WATER FOR TEXTILE MILLS

BY M. M. MacLEAN, C. E.

Perhaps in no other field is pure, soft water such a necessity as in the textile industry. Neither is there any other place where it will produce such marked results as against the use of hard water. The treated water may be used throughout the entire plant; for boilers, lavatories, scouring, washing, rinsing, bleaching, dyeing, etc. The large amount of soaps required in the various processes to overcome the hardness of the water is very materially reduced by the use of water in which the hardness has previously been broken. Not only is the saving in soap of great moment, but the superiority of the product obtained through the use of soft water as against hard water is so very evident that it cannot be overlooked by the manufacturer. In the bleaching process, W. M. Gardner, director of the chemistry and dyeing department of the Technical College, Bradford, England, writes as follows:

"It is very necessary that wool which is intended for bleaching should be previously very thoroughly scoured. And this for two reasons: Firstly, in order that the bleaching solution may thoroughly penetrate into every portion of every fiber, which is im-

possible if the fatty matter is not removed, and secondly, because any greasy matter is liable to give rise to yellow oxidation products, which destroy the purity of the white. When soap is one of the scouring agents employed, the use of water containing calcium or magnesium salts in notable amount is very objectionable, because this leads to the formation of sticky, insoluble calcium or magnesium soaps, which are not only quite useless as detergents, but become fixed upon the wool in such a permanent manner that they cannot be removed by washing with water. This results in a waste of soap, corresponding to the amount of metallic salts present, and there is also the probability of trouble in the subsequent dyeing operations. In the case of some dyestuffs—the azo scarlets for example—the lime soap acts as a resist preventing the fixation of the dye, and thereby causing light colored or white spots. With other coloring matters it plays the part of a mordant, thus producing darker colored irregularities; e. g., when dyeing, with magenta, the fatty acid of the lime soaps as a mordant, while in the case of alizarin the calcium or magnesium is the combing body.

"Frequent defects of the kind known as 'white lists' or 'dark lists' are the result of using a hard water for the purpose of washing off piece goods after scouring, mordanting or dyeing. The defect arises from the capillary flow of the water into the selvedges, caused by the latter becoming the most quickly dry when the cloth is rolled up in a wet condition. As it evaporates, the water deposits all of the solid matter it contains in solution, and there is this continual deposition of the lime, etc., at the edges of the material, which, as indicated above, acts as a mordant or a resist.

"When the goods are dyed after the raw material has been washed with hard water, they take on a faded out appearance, instead of the perfect, bright hues desired. Especially is this 'faded out' color present in blacks, the goods being of a grayish cast, instead of jet black, as obtains when soft water is employed. The incrusting solids and other impurities in hard water cause the finished product to have a harsh, rough touch, instead of the smooth, silky feel that is so much in evidence when pure, soft water has been used in the processes."

A UNIQUE EMERGENCY POWER PLANT

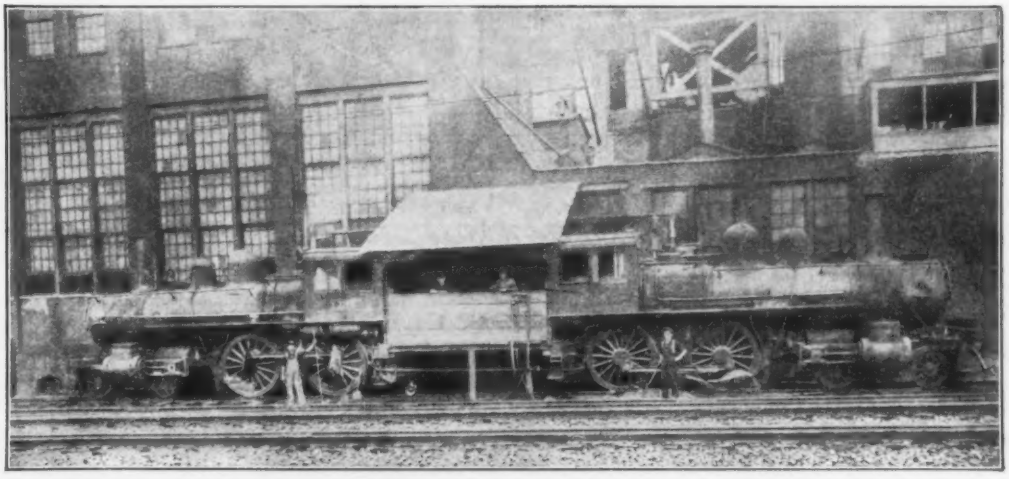
BY FLETCHER SCHAUM

When a manufacturing plant is confronted with the problem of replacing an old, inadequate battery of boilers with a new one of greater capacity, it is not a simple matter to make the change without interrupting operations, because, as a rule, very few methods of procedure are available. This condition was met, most ingeniously, when it became necessary for Schaum & Uhlinger, Inc., of Philadelphia, Pa., builders of textile machinery and centrifugal hydro-extractors, to increase their source of power supply. An estimate from the local company showed electric power to be of prohibitive cost. The idea of utilizing locomotives for the purpose, while somewhat novel, at first thought, bore the elements of sound judgment. The location of the plant, on the main line of the Pennsylvania Railroad, made feasible the storage of locomotives on a long, freight siding.

It remained a problem, however, to get locomotives of the proper capacity, for it is not difficult to obtain those with too much power, since the sizes of locomotives found on railroad "scrap heaps," in these days of heavy railroading, have increased to a point where small engines are rather difficult to obtain. Two "American" type locomotives were finally obtained from the Pennsylvania Railroad, at a very reasonable rental. While these were doing service, the old battery of two boilers was replaced with a 462 h. p. Heine boiler, stoker-fired by a Taylor automatic stoker of the five-retort type; the furnace is fitted with an extension grate, giving enough grate area to insure absolute combustion of the fuel, without having to have a brick arch. A blower is used for forced draught.

The process of locomotive boiler substitution was simple, but effective. The two old locomotives, whose connecting rods and valve gears had long been disconnected,

were hauled to a convenient point on the siding, after their tenders had been uncoupled; their throttle valves were closed, and a connection piped from their auxiliary domes, over the fireboxes, to the main steam lines in the plant. Their positions, back to back, with an elevated platform erected between them, allowed sufficient space for two firemen, and a copious coal supply, that could be replenished without interrupting the service. As a matter of fact, this means of steam supply is hardly economical enough to warrant its retention for a protracted period, since the amount of coal consumed per horse power hour is far greater than the average manufacturing plant can afford; but there is no question that the money for the excess coal consumption, in addition to the moderate rental, and a few dollars more for labor, are well spent when a continuous, liberal steam supply is assured, that keeps the plant in operation during the installation of the new boilers, and whose connection with the main steam supply can be made in a short time at night, without stopping operations for even an instant.



A UNIQUE EMERGENCY POWER PLANT

It is reported that there are 33,975 jute looms and 706,380 jute spindles in India in March, 1913, as compared with 32,927 looms and 696,300 spindles on the same date in 1912.

FRICTION AND POWER TESTS OF LINE-SHAFT HANGERS

At the recent New York meeting of the American Society of Mechanical Engineers December 2nd to 5th inc. 1913, a very interesting paper on comparative tests of three types of lineshaft bearings, by Carl C. Thomas, E. R. Maurer, and L. E. A. Kelso, was read by Professor Carl C. Thomas, now professor of mechanical engineering, Johns Hopkins University, formerly professor of mechanical engineering, University of Wisconsin.

The paper reports experimental determinations of the absolute and relative amounts of power required to drive a specially constructed series of shafts, flexibly connected and carrying known loads uniformly distributed over twenty ring-oiled babbitt bearings, twenty roller bearings and twenty ball bearings manufactured by The Hess-Bright Manufacturing Company. A great range of loads and speeds was covered, and coefficients of friction were worked out for each type of bearing.

The apparatus was designed and built in the department of steam and gas engineering at the University of Wisconsin, in collaboration with the manufacturers of the bearings, and was so arranged that very exact measurements of power were attain-

able. All questions of possible lack of alignment, non-uniformity of loading, temperature and quality of lubricant, etc., were given careful study, resulting in the special form of apparatus used. The tests extended over a period of four years, were finally repeated and all results checked by a set of skilled observers, who had formerly had no connection with the work, and hence their authenticity can be vouched for.

The following data regarding coefficients of friction for the three types of bearings at various loads and temperatures of bearing, and at a peripheral speed of the shaft of 150 feet per minute, corresponding to average lineshaft speed of 235 r. p. m., are interesting:

COMPARISON OF COEFFICIENTS OF FRICTION.

Bearing.	Peripheral Speed of Shaft = 150 Ft. per min. Corresponding to 235 R.P.M.					
	Average Load per Bearing = 727 Lbs.		Average Load per Bearing, = 1227 Lbs.		Average Load per Bearing = 1727 Lbs.	
	Temperature Bearing = 77°F	Temperature Bearing = 100°F	Temperature Bearing = 77°F	Temperature Bearing = 100°F.	Temperature Bearing = 77°F	Temperature Bearing = 100F.
	Coef. Friction	Coef. Friction	Coef. Friction	Coef. Friction	Coef. Friction	Coef. Friction.
Ball	0.0025	0.0019	0.0022	0.0018	0.0020	0.0016
Roller	0.0069	0.0055	0.0055	0.0047	0.0049	0.0042
Babbitt	0.0112	0.0075	0.0082	0.0058	0.0070	0.0051

Another interesting table presenting the comparison in a different way is given below. This table gives the relative amounts of power consumed in friction by the three types of bearings, assuming the relative amount of power consumed in friction by the ball bearing as 1. The relative numbers given are based in each case on the average power for three loads: 710, 1,210, and 1,710 lbs. for ball bearing; 740, 1,240, and 1,740 lbs. for roller bearing; 730, 1,230, and 1,730 lbs. for babbitt bearing.

COMPARISON OF RELATIVE AMOUNTS OF POWER CONSUMED IN FRICTION

Bearing	Peripheral Speed = 100 Ft. per min Corresponding to 157 R P.M.		Peripheral Speed = 300 Ft. per min Corresponding to 470 R P.M.	
	Temperature of Bearing = 77° F.	Temperature of Bearing = 100° F.	Temperature of Bearing = 77° F.	Temperature of Bearing = 100° F.
Ball	1	1	1.	1
Roller	2.2	2.5	2.7	3.
Babbitt	3.	3.6	4.5	4

In addition to the above, which will give an idea of the scope of the paper, there is other valuable information, and users of lineshaft hangers, as well as others interested in this subject, will find much data on this subject.

A NEW SIZING COMPOSITION

A new sizing preparation for which Louis C. Schwensen, 32 Union Sq., New York, is the agent, is highly recommended by manufacturers who have used it for textile materials, millinery trimmings and artificial straw. It is a cold water solution, which avoids the expense of heating. The preparation is neutral and can be used on silks, braids, cotton filled grosgrain, satin taffetas, broad silks and textile materials of all kinds.

Among the other claims made for it are the following: It works equally well on all colors, including bleached, white and black, and will not discolor or injure the most delicate fabrics. It comes in concentrated liquid form and is easily manipulated by adding

cold water according to the strength desired. It is odorless, colorless, transparent and flexible. Materials sized with this preparation have a tendency to become moisture proof. It will not sour, mould nor deteriorate, giving good results at a low cost.

THE "E. Z." CLOTH UNROLLER

A cloth unrolling device manufactured by the Cloth Unrolling Mfg. Co., 812 Holly St., Philadelphia, Pa., is shown at Fig. 1. The piece of cloth is placed on the projecting block or spear and pressed down until the selvage edge comes next to the platform. The unroller is placed at a point opposite the center of the perch below the spreader as shown at Fig. 2. The cloth is then drawn over the perch and examined in the ordinary manner. As it is pulled down, the roll revolves on the unroller so that it requires no more attention than if the cloth was being pulled from open folds. This is a device that will be found very convenient by those having occasion to examine cloth from the roll. The "E. Z." unroller, which is protected by patents, is equipped with ball bearings so that all tension is avoided and the cloth runs over the perch in the freest possible manner. Fig. 2 shows it used in connection with the improved automatic measuring and perching machine built by Jacob K. Altemus. It is now giving satisfaction in a number of establishments and the manufacturers will be pleased to supply further information regarding it.

FIG. 1

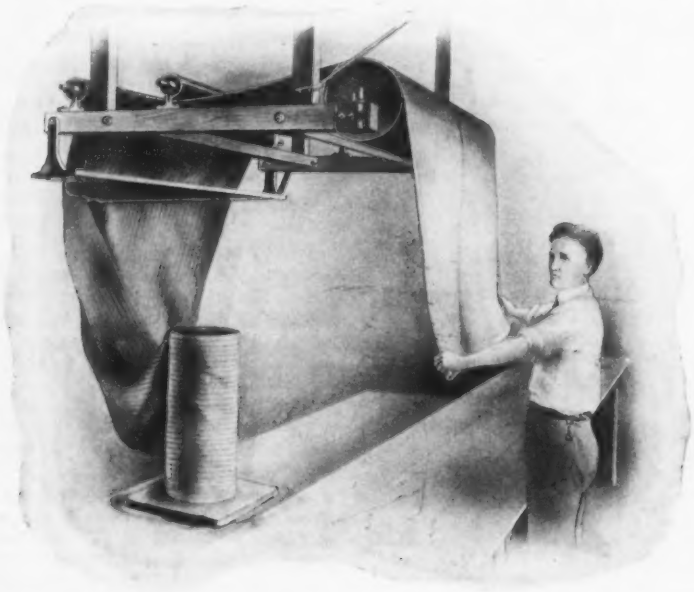


FIG. 2

Personals

Charles E. Meader, for over thirteen years agent of the Lowell Bleachery, Lowell, Mass., has resigned to accept a position in charge of the bleachery department for the Garner Print Works and Bleachery, Wappinger's Falls, N. Y.

Howard L. Whiteley, for a number of years superintendent of the Lowell Bleachery, Lowell, Mass., has been promoted to the position of agent with this company.

Frank W. Hatch, formerly assistant superintendent of the New Bedford Cordage Co., New Bedford, Mass., has been appointed superintendent to succeed the late Marshall F. Lewis.

George A. Vosburgh, superintendent of the Wright's Health Underwear Co., Mohawk Mills, Cohoes, N. Y., has severed his connection with that company.

J. B. Curtis has accepted the position in charge of the cotton department of the Newmarket Manufacturing Co., Newmarket, N. H., as general superintendent.

John Leiper has been appointed superintendent of the New York Mills, New York Mills, N. Y. He was formerly employed in a similar position with the Danielson Cotton Co., Danielson, Conn.

R. W. Smith, in charge of the cloth department at the Lymansville Co., Lymansville, R. I., has been appointed superintendent to succeed Irving Ward.

Ernest Lindeman has accepted the position of overseer of carding and spinning at the Faribault Woolen Mills Co., Faribault, Minn.

Robert Oldread, for thirty-five years overseer of dressing at the York Manufacturing Co., Saco, Me., has severed his connection with that company.

Archibald F. Houston has accepted the position of overseer of dressing at the York Manufacturing Co., Saco, Me.

Albert C. Sear, for the past thirteen years overseer of weaving at the American Textile Co., Pawtucket, R. I., has resigned to accept a position with the Richmond Lace Co., Albany, N. Y.

Clarence Ellis has accepted the position of overseer of the cloth room at the Royal Mill, B. B. & R. Knight, Riverpoint, R. I., to succeed James Breslin.

Thomas Hart has accepted the position of overseer of weaving at the Coronet Worsted Co., Mapleville, R. I. He was formerly employed at the Yantic Woolen Co., Yantic, Conn.

John McKenna has accepted the position of overseer of the cloth room at the Valley Queen Mill, B. B. & R. Knight, Riverpoint, R. I.,succeeding Clarence Ellis.

Albert Ainley, overseer of weaving at the Coronet Worsted Co., Mapleville, R. I., has resigned to assume charge of the weaving at a small mill established at Long Beach, Cal.

John M. Cooney, paymaster and bookkeeper at the Berkshire Woolen & Worsted Co., Pittsfield, Mass., has severed his connection with that company.

Harry Ayers has accepted the position of overseer of the picking room at the Baltic Mills, Enfield, N. H.

Carl Taubert has been promoted to the position of agent of the Manton Mills, American Woolen Co., Manton, R. I. He was formerly superintendent of this mill.

Joseph Sykes has been appointed New England representative for the Collings, Taylor Co., Cleveland, O. He was formerly employed at the Lawrence, Webster Co., Malone, N. Y. Mr. Sykes' experience and knowledge of stock will fit him for the position which he has taken.

Nehemiah Jordan, for several years master mechanic at the B. B. & R. Knight, Royal Mill, Riverpoint, R. I., has severed his connection with that company.

John Bellamy has accepted the position of master mechanic at the Royal Mill, B. B. & R. Knight, Riverpoint, R. I. He was formerly employed at the Nottingham Mills, Providence, R. I.

Edmond J. Doucette, overseer of spinning at the Wottoquottoc Worsted Co., Hudson, Mass., has severed his connection with that company.

Philias Morin, for the past eight years overseer of the weaving department at the Shove Mill, Fall River, Mass., has severed his connection with that company.

John Jarray, 65 years of age, a resident of the Chestnut Hill section at Uxbridge, Mass., had his right hand caught in the picking machine at the Hecla Mill, American Woolen Co., Uxbridge, Mass. He was taken to the Worcester City Hospital where surgeons found it necessary to amputate his arm.

Edward H. Heine has accepted the position of overseer of weaving at the Great Falls Woolen Co., Somersworth, N. H. He was formerly employed at the Waucantuck Mill, Uxbridge, Mass.

Charles W. Young has accepted the position of overseer of carding at the Versailles Sanitary Fibre Mills, Versailles, Conn. He was formerly employed at the Bennett Mill, New Bedford, Mass.

Otto Ruhlin has accepted the position of overseer of finishing at the Merrimac Valley Mills, Methuen, Mass. He was formerly employed at the Bellevue Mills, Clinton, Mass.

Robert Swan, assistant superintendent of the dyeing and finishing department at the Arlington

Mill, Lawrence, Mass., has severed his connection with that company. The position will be filled by John B. Bolton, who has been in the employ of this company for some time.

John Greenwood has accepted the position of superintendent of the Ashtabula Worsted Mills, Ashtabula, O., succeeding James H. Redmond.

W. W. Weeden, agent of the Manton Mill, American Woolen Co., Manton, R. I., has severed his connection with that company.

Sanford D. Tappan, for a number of years with the Puritan Mills, American Woolen Co., Plymouth, Mass., has been appointed superintendent of the Manton Mill, American Woolen Co., Manton, R. I.

E. C. Gwaltney has been appointed general superintendent of the Marlboro Cotton Mills, McColl, S. C. He was formerly employed in a similar position at the New York Mills, New York Mills, N. Y.

A. R. Heritage has recently become connected with the Hussong Dyeing Machine Co., and will represent that concern in New England and the Middle States in the sale of their machines. Mr. Heritage is a practical man with a long mill experience and previous to his present connection has represented the Rodney Hunt Machine Co. on the road.

Thomas M. Dorgan, overseer of spinning at the C. J. Amidon & Company's Mill at Wilton, N. H., has resigned.

Leon L. Dorr has been appointed salesman for the Chicago-Kenosha Hosiery Co., Kenosha, Wis., and will act as New England agent for an office in Boston, Mass. He was formerly employed for Copeland & Bowser, Auburn, Mass.

Wesley W. Blossom has been appointed superintendent of the Laurel Lake Mill, Fall River, Mass., to succeed Major Melvin.

Albert W. Scott has been elected president of the International Cotton Mills Co., New York City, succeeding Robert F. Herrick. John E. Rousmaniere, formerly assistant treasurer, has been made treasurer. Mr. Scott is a member of the firm of Lockwood, Greene & Co., who are managing the International Cotton properties. His office, also that of Mr. Rousmaniere, is at 60 Federal St., Boston.

Thomas Holden, for the past twelve years overseer of carding at the Burlington Mill, American Woolen Co., Winooski, Vt., has severed his connection with that company. Fred Gunther, assistant to Mr. Holden, has also resigned.

William H. Hill, for several years in charge of the worsted department of the Goodall Worsted Co., Sanford, Me., has resigned to become superintendent of the Springvale Spinning Co., Springvale, Me.

William R. Witherell, for the past three years connected with the North Adams Manufacturing Co., North Adams, Mass., has severed his connection with that company to accept a position in the New York office of the American Woolen Co. in their sales department.

Alfred Guertin, for the past seven years overseer of weaving at the Mann & Stevens Woolen Co., East Brookfield, Mass., died at Hotel Lakewood in that city at the age of 60 years. The cause of his death was cerebral hemorrhage.

B. J. Maxfield has accepted the position of overseer of carding at the Burlington Mill, American Woolen Co., Winooski, Vt.

J. J. Hill has been promoted from second hand to overseer of weaving at the Edna Mills, Reidsville, N. C.

M. M. Coggins has accepted the position of overseer of spinning at the Fairmont Manufacturing Co., Fairmont, S. C. He was formerly employed at the Lydia Mill, Clinton, S. C.

T. J. McNeely has been appointed superintendent of the Holt Williamson Mill, Fayetteville, N. C. He was formerly employed at the Elmira Mill, Burlington, N. C.

George L. Caine has been appointed superintendent of the Riverside Mills, Worthville, N. C. He comes from Roanoke Rapids, N. C.

E. C. Little has accepted the position of overseer of carding at the Avondale Mills, Birmingham, Ala. He comes from Liberty, S. C.

W. L. Dunn has accepted the position of overseer of weaving at the Monaghan Mills, Seneca, S. C.

T. C. Whitnacht has been appointed superintendent of the Albany Cotton Mills, Albany, Ga. He comes from Huntsville, Ala.

George Harrison has accepted the position of overseer of weaving at the Victor Manufacturing Co., Arlington, S. C. He comes from Seneca, S. C.

Martin Picklesheimer has accepted the position of overseer of weaving at the No. 2 Mill of the Fulton Bag & Cotton Mills, Atlanta, Ga. He was formerly employed at the Westervelt Mill, Greenville, S. C.

W. M. Milner has been appointed superintendent of the Holt Granite Mill No. 1, Haw River, N. C.

T. L. Sanders, Jr., has been appointed superintendent of the Alpine Mills, Morganton, N. C. He comes from Kannapolis, N. C.

J. M. Rudisill has accepted the position of overseer of carding at the Saxony Mill, Lincolnton, N. C. He was formerly employed at the Rhyne's Cotton Mill, at the same place.

D. L. Garrison has accepted the position of overseer of carding at the Rhyne's Cotton Mill, Lincolnton, N. C. He was formerly employed at the Saxony Spinning Co., at the same place.

W. H. Hallett, superintendent of the Hawthorne Silk Co., Fayetteville, N. C., has resigned.

Samuel Aitken, who formerly owned and operated a silk mill in Paterson, N. J., has been appointed superintendent of the Hawthorne Silk Co., Fayetteville, N. C.

A. Doehner, a farge hosiery manufacturer ol Chemnitz, Saxony, has appointed Messrs. Taylor & Goodman, 346 Broadway, New York City, as his sole American agents.

William R. Shanks has been appointed superintendent of the Darling Woolen Mill Co., Holliston, Mass., succeeding George W. Taylor.

T. F. Cuddy has been appointed superintendent of the Walcott & Campbell Spinning Co., New York Mills, N. Y.

Herbert R. Weston, superintendent of the Walcott & Campbell Spinning Co., New York Mills, N. Y., has severed his connection with that company.

George F. Haigh, formerly head designer at the Globe Woolen Co., Utica, N. Y., has accepted a similar position with the Puritan Mill of the American Woolen Co., Plymouth, Mass.

Frank Malloy has accepted the position of assistant superintendent for the Stillwater Worsted Co., Harrisville, R. I. He was formerly employed at Stafford Springs, Conn.

P. J. Carey, overseer of finishing at the Darling Woolen Mill Co., Holliston, Mass., has severed his connection with that company.

Moses Spencer, president of the Sydney Worsted Co., Woonsocket, R. I., has disposed of his holdings in this company and has severed his connection. Bertram W. Spencer, his son, who has also been employed at this mill, has resigned.

Allan Hanscom has resigned his position as assistant superintendent of the River Spinning Co., Woonsocket, R. I.

Rudolph A. Weber, president of the R. A. Weber Silk Dyeing Co., College Point, N. Y., has retired as president. He is succeeded by his son, Rudolph A. Weber, Jr.

J. B. Couture, for twenty-two years overseer of the spinning department at the Kerr Thread Mill, Fall River, Mass., has resigned his position. He was presented with $25 in gold by the help in the spinning department.

Arthur Smalley has accepted the position of overseer of weaving at the American Linen Co., Fall River, Mass., to fill the vacancy caused by the promotion of William Colbert to superintendent.

Barney Farrell has been appointed overseer of twisting, spooling and warping at the New York Mills, No. 2, New York Mills, N. Y.

Calvin E. Wilson, overseer of twisting, warping and winding at the Anco Mills, Wilkinsonville, Mass., has severed his connection with that company.

J. B. Meacham has been appointed superintendent of the Buck Creek Cotton Mill, Siluria, Ala. He was formerly employed at the Delta Cotton Mill, McComb City, Miss.

W. J. Hamilton has accepted the position of overseer of night carding at the Highland Park Mill, No. 3, Charlotte, N. C.

D. L. Cleary has accepted the position of overseer of night spinning at the Capital City Mills, Columbia, S. C.

J. T. Davis has accepted the position of overseer of weaving at the Maplecroft Mills, Liberty, S. C.

David Crenshaw has accepted the position of overseer of twisting at the Arlington Mill, Gastonia, N. C.

F. McCabe has accepted the position of overseer of spinning at the Fountain Inn Manufacturing Co., Fountain Inn, S. C., succeeding A. J. Persley.

B. D. Eads has accepted the position of overseer of carding at the Fountain Inn Manufacturing Co., Fountain Inn, S. C.

Charles Lang has accepted the position of overseer of carding at the Monadnock Mills, Claremont, N. H. He comes from Troy, N. Y., and succeeds Joseph Pelletier.

Thomas E. Fay, overseer of the tentering department of the local branch of the U. S. Finishing Co., Pawtucket, R. I., has resigned his position with that company.

Arthur L. Brown has accepted a position as superintendent of the chemical department of the Hudson Worsted Co., Hudson, Mass. He comes from Brockton, Mass.

Henry Prunaret, until recently superintendent of the Poidebard Silk Manufacturing Co., Jersey City, N. J., has accepted a similar position with the Central Silk Manufacturing Co., Siegfried, Pa.

John Donahue has been appointed superintendent of the Troy Knitting Co., Troy, N. Y. He comes from Albany, N. Y.

P. C. Ryan has accepted the position of overseer of spinning at the Darling Woolen Mill Co., Holliston, Mass. He was formerly employed at the Electro Chemical Fibre Co., at Holliston.

Frank Judson has accepted the position of overseer of finishing at the Darling Woolen Mill Co., Holliston, Mass. He was formerly employed at the Enfield Manufacturing Co., Enfield, Mass.

H. L. Burrage, vice-president of the National Shawmut Bank, Boston, Mass., has been elected president of the Canadian Connecticut Cotton Mills, Ltd., Sherbrooke, P. Q., Canada. He is also a director of the Connecticut Mills Co., Killingly, Conn.

John F. Cullen, assistant superintendent of the Globe Mill, Utica, N. Y., has accepted the position of superintendent of the Wood Mill, American Woolen Co., Lawrence, Mass.

William Walker, superintendent of the Great Falls Woolen Co., Somersworth, N. H., has severed his connection with that company and is succeeded by E. D. Royce, formerly superintendent for Frederick Faulkner, Stafford Springs, Conn.

Robert Blair has been appointed superintendent of the printing department at the Aspinook Company, Jewett City, Conn., succeeding Henry Schaefer.

David Tousignant, superintendent of the Newmarket Manufacturing Co., Newmarket, N. H., has resigned to accept a similar position with the Aiken Manufacturing Co., of Bath, S. C., and the Seminole Manufacturing Co., of Clearwater, S. C.

Sanderson W. Hayes, designer at the Newmarket Manufacturing Co., Newmarket, N. H., has been promoted to the position of superintendent to succeed David Tousignant.

D. C. Shainline has accepted the position of overseer of knitting at the Des Moines Hosiery Mills, Des Moines, Ia.

Thomas H. Connelly has accepted the position of overseer of ring spinning at the Newmarket Manufacturing Co., Newmarket, N. H., to succeed Louis Levasseur.

Charles Brownell, overseer of carding at the Wampanoag Mills, Nos. 1 and 2, Fall River, Mass., has resigned to accept the position of assistant superintendent of the Burgess Mills, Pawtucket, R. I.

James Sullivan, second hand in the carding department at the Wampanoag Mill, No. 2, Fall River, Mass., has been appointed overseer of that department.

Sylvester McGinn, second hand in the carding department of the Wampanoag Mill, No. 1, Fall River, Mass., has been promoted to the position of overseer.

Peter F. Fenton, overseer of weaving at the Flint Mill, Fall River, Mass., has resigned to accept a similar position at the Lincoln Mill, of the same city.

William Hathaway has been appointed overseer of carding at the Border City Mill, Fall River, Mass., succeeding Anthony O'Malley.

Benjamin Hetherington has accepted the position of overseer of weaving at the Flint Mill, Fall River, Mass. He was formerly overseer at the Lincoln Mill of the same city.

Harold Harrison, for a number of years overseer of mule spinning at the Nemasket Cotton Yarn Co., Taunton, Mass., has resigned.

William Evans has accepted the position of designer at the Danielson Cotton Co., Danielson, Conn. He comes from Lancashire, England.

P. H. Manning, overseer of carding at the Baltic Mills, American Woolen Co., Enfield, N. H., has resigned.

William H. Walsh has accepted the position of overseer of weaving at the Linn Woolen Co., Hartland, Me., succeeding John Scott.

Charles A. Wyman, overseer of weaving at the C. J. Amidon & Son's Mill, Wilton, N. H., has severed his connection with that company.

Fred Marsden has accepted the position of overseer of carding at the Globe Yarn Mills, Fall River, Mass. He was formerly employed at the Thorndike Co., Thorndike, Mass.

John H. Arran, overseer of finishing at the Peace Dale Manufacturing Co., Peace Dale, R. I., has severed his connection with that company.

E. C. Short, overseer of finishing at the J. A. Humphrey & Sons Mill, Moncton, N. B., Canada, has resigned. He has returned to his home in Athol, Mass.

John Shurts has accepted the position of overseer of carding at the Glasgo Yarn Mills, Glasgo, Conn. He comes from Woonsocket, R. I.

Charles A. Greenwood, proprietor of the Main Stream Woolen Mills, formerly known as the Greenwood Woolen Co., North Dexter, Me., was presented with a beautiful gold watch by the help in his employ. C. P. Gilman, superintendent of this mill, made the presentation. Mr. Greenwood was wholly taken by surprise but expressed in a few chosen words his appreciation of the gift and the good feeling his help had toward him.

John H. Wilson, second hand of the weaving department at the Wakefield Mills Co., Wakefield, R. I., has severed his connection with that company. On his retirement the employes in the weaving department presented him with a $10 gold piece and a fountain pen.

C. J. Huss has been again elected secretary and treasurer of the Atlas Manufacturing Co., Bessemer City, N. C.

J. D. Campbell has been appointed superintendent of the Nokomis Mill, Lexington, N. C., succeeding C. A. Hunt. He comes from Albemarle, N. C.

George Painter, overseer of weaving at the Apalache Mill, Arlington, S. C., has resigned to accept a similar position at Greenville, S. C.

J. T. Nance has accepted the position of overseer of carding and spinning at the Patterson Mills, Kannapolis, N. C. He was formerly employed at the Manchester Mills, Rock Hill, S. C.

C. C. Riddle has accepted the position of overseer of carding at the Johnston Manufacturing Co., Charlotte, N. C.

Hugh Gile, superintendent of the Springvale Spinning Co., Springvale, Me., has severed his connection with that company. He will open a commission office in Boston, Mass., and sell yarn.

James McGill, overseer of finishing at the Ounegan Mill, Old Town, Me., has resigned to accept a similar position at Dexter, Me.

E. W. Billings has accepted the position of overseer of carding, spinning and twisting at the Jamestown Cotton Mill, Jamestown, N. Y. He was formerly employed at the Utica Knitting Co., Sherburne, N. Y.

DEATHS

Joseph F. Thomas, a well-known resident of Yorkville, Utica, N. Y., died at his home December 23 following a two weeks' illness. Mr. Thomas was born Aug. 27, 1883. During the past four years he had been an overseer of the finishing and spinning departments at the Utica Fine Yarn Corporation, Utica, N. Y. He is survived by his mother, two sisters and three brothers.

William Mullins, overseer of carding at the American Linen Manufacturing Co., Fall River, Mass., died December 25 after a protracted illness. He was a lifelong resident of the city and had been in the employ of the American Linen Co. for a great many years. He is survived by a widow and three daughters.

A. M. Orr, president of the Orr Felt & Blanket Co., Piqua, O., died December 18 after an illness of only a few hours. He is survived by a daughter and was the son of the late General W. P. Orr.

Charles B. Skipper, for twenty years a prominent mill man and textile expert, was struck by a car December 25 at Charlotte, N. C., and instantly killed. Mr. Skipper was with Col. LeRoy Springs in the cotton mill business at Lancaster, S. C., for a period of sixteen years, acting as superintendent of the Lancaster Cotton Mills. About two years ago he became interested in the organization of the Thayer Manufacturing Co. at Charlotte, N. C., and was largely instrumental in the organization of this mill. He had recently purchased an interest in the Brevard Cotton Mills, Inc., Brevard, N. C., and on January 1 was to take up his new duties as president and manager of this mill. Mr. Skipper is survived by a wife, two daughters and a son.

Marshall F. Lewis, superintendent of the New Bedford Cordage Co., New Bedford, Mass., died at his home in Danielson, Conn., at the age of 52 years from heart trouble. He leaves a widow and three children.

J. Edmond Kendrick, president of the American Supply Co., Providence, R. I., died at his home in that city December 26 of Bright's disease. His death was wholly unexpected as his many friends thought he was on the road to recovery. He had been ailing for about six months. Mr. Kendrick was born in Providence, R. I., fifty-nine years ago, attended the public schools and graduated from Wesleyan University, class of 1876. In 1879 he became associated with the Kendrick Loom Harness Co., whose plant is now at Central Falls, R. I. He ran for Mayor of Providence in 1897, having been president of the Common Council of that city for a number of years. He was a son of the American Revolution and a thirty-second degree Mason. Mr. Kendrick is survived by a widow, one son and a daughter.

George Bisco, a prominent manufacturer of card clothing, who conducted a business at Manchester, N. H., died suddenly at his home January 3 at the age of 83 years. Death was due to apoplexy. He was born in Leicester, Mass., and took up his residence in Manchester, N. H., in 1859. Mr. Bisco was also a director of the American Card Clothing Co. of Worcester, Mass., and is survived by two sons.

Albert A. Sprague, for a number of years bookkeeper at the Hecla Mill, American Woolen Co., Uxbridge, Mass., died at his home in Uxbridge at the age of 64 years. For a number of years Mr. Sprague was overseer of dyeing for what is now known as the Stanley Woolen Co. at Uxbridge, when it was operated by the late Daniel W. Taft. His widow, one brother and a sister survive him.

John A. Culbertson, engaged in the manufacture of dress goods and men's wear at 3d and Cumberland Sts., Philadelphia, Pa., the plant for many years being located at 23d and Hamilton Sts., in the Fairmount district, before its removal to the former address, died on Friday, January 16, at the age of 47 years. He was suddenly stricken Friday night and died within an hour.

George W. Engel, superintendent and designer at the Faulkner Manufacturing Co., North Billerica, Mass., who was superintendent at one time for the M. T. Stevens & Sons Co. at their Haverhill, Mass., plant, died at North Billerica, on January 16, at the age of 54 years. He was buried from his home in North Cambridge, Mass., where he leaves a wife and family.

John G. Cameron, for a number of years a resident of Rockville, Conn., died at his home in that city at the age of 84 years. For thirty years he had charge of the dyeing department at the Belding Bros. Co. Silk Mill at Rockville.

John Lancaster died at his home in Saugus, Mass. He was born in Bradford, Yorkshire, Eng., June 7, 1842. For a number of years he was overseer of weaving at the Sawyer Mill, which is now operated by the American Woolen Co., at Dover, N. H.

George Nightingale Durfee died at his home in Fall River, Mass., at the age of 71 years. He was a director of the Osborne Mill of that city.

James Howard died at his home in Fall River, Mass., at the age of 72 years. For a number of years Mr. Howard has been an overseer at the Narragansett Mill at Fall River and also at the Border City Manufacturing Co. He is survived by a wife, two daughters and two sons.

Michael Kirby, for over twenty years employed as boss carder at the Lymansville Co., Lymansville, R. I., but who had retired from active mill life, died at his home in Lymansville at the age of 75 years. He is survived by a wife and four sons.

Samuel Warren Orswell, treasurer of the Blodgett & Orswell Co., Pawtucket, R. I., died at his home in Providence, R. I., at the age of 64 years. Mr. Orswell was secretary of the E. Jenckes Manufacturing Co., of Pawtucket, R. I., and resigned that position to enter into the manufacturing business with Edward C. Blodgett to start a plant in the production of glazed yarns. The business was later incorporated. They afterwards started the Pawtucket Dyeing & Bleaching Co. His widow, a daughter and one son survive him.

New Publications

Any work noticed under this heading can be obtained, postage or express charges free, by sending the price listed to Lord & Nagle Company, 144 Congress St., Boston, Mass. A catalogue of textile books in the English language will be sent free on application.

Heaton's Annual, the Commercial Handbook of Canada; Heaton's Agency, Toronto. Price $1.00. Postage 12 cents.

The 1914 edition of Heaton's Annual has come to hand. The first edition was compiled in 1904 for the Department of Commerce and of the Dominion Government, to meet the requirements of British firms doing business with Canada. In the first 214 pages will be found information on the customs tariff and regulations. The digest of the customs laws and regulations includes all the memoranda and bulletins that are issued by the Department to the customs officials. The Shipper's Guide, giving population, banking accommodation and railway connections in every banking town in the Dominion is a new feature which will be appreciated. The second half of the book contains a concise, up-to-date description of all the towns in Canada of any commercial importance, including the leading hotels, the existing industries, and special opportunities for new industries. To this is added a section covering such subjects as agriculture, fur-farming, commerce, education, finance, fisheries, forests, immigration, mining, population, professions, railways, game laws, water powers, etc., an admirable, up-to-date pocket encyclopedia of the resources of the Dominion.

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Heating and Ventilation; 335 pages, 6 1/4 by 9; B. F. Sturtevant Co., Hyde Park, Mass.

The first edition of this work was published over twenty-five years ago by the Sturtevant Co. and each new edition has been enlarged by the addition of valuable material which the company had collected from their extensive experience in the work of heating and ventilation. The contents of the present edition are divided as follows: Ventilation; Heat, Heating and Cooling; The Sturtevant System; Heating and Ventilating Apparatus; Heating and Ventilating Calculations; Testing; Special Problems of Application; Typical Installations, The Sturtevant Apparatus.

Part 2 is an appendix devoted to tables. The work is freely illustrated and an excellent index enables quick reference to any subject. While this book deals extensively with the Sturtevant products it is a technical handbook of general utility. Owing to the expense connected with its publication, the publishers have been obliged to charge a small price for it.

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The Manufacture of Knit Goods and Hosiery (Die Fabrikation der Trikot sowie Strumpfwaren); 218 pages, 5 by 7; A. Hartleben's Verlag, Vienna and Leipzig.

Beginning with a description of the various textile fibers, the author has given brief accounts of the processes required for converting raw material into yarn, the subjects being handled under the following heads: Raw material; cotton, linen and jute spinning; carded woolen and worsted spinning; numbering yarn, twisting, knitting, scouring, cutting up, bleaching, dyeing, finishing and calculating cost. The text is in German.

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Woolen and Worsted Fabrics Glossary; 348 pages, 5 3/4 by 8 1/4; Frank P. Bennett & Co., Boston, Mass. Price $3.

This book consists of illustrated descriptions of various fabrics. The layout and weave drafts are given for different cloths of each class. In addition there is a description of the goods giving much useful information. An index enables the reader to refer quickly to any fabric desired. The volume cannot fail to be of value to all connected with the textile trade.

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Worrall's Textile Directory of Ireland, Scotland and Wales, 1914; John Worral, Ltd., Oldham, Eng. Price $2.50.

The latest edition of this well known directory has been carefully revised in order to bring it up to date. It contains a list of all the textile mills in Ireland, Scotland and Wales, the mills being classified according to industries and location. The size of the plant and class of goods is given with each address.

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Calico Engraving; by William Blackwood; 272 pages, 6 by 9; J. B. Lippincott Co., Philadelphia, Pa.

This book, which it is stated is the first to be published in English dealing with calico engraving, begins with an historical sketch of the art of colico engraving, the technical part of the subject being handled under the following heads: Relative to Calico Engraving; Sketchmaking; Photography as Applied to Calico Engraving; Handkerchief Engraving; Zinc or Plate Cutting; Pentagraph Engraving Cradle Machine; Flat Table Machine; Die Pentagraph Machine; Tools for Calico Engravers; Elementary Hints for Hand Engravers; Hand Engraving, Engraving for Paper Stainers, Die Making for Mill Engraving; Punchmaking for Calico Engraving; Die and Mill Turning; Mill Machine Engraving; Wheel Gearing; Embossing or Relief Engraving; Etching; Varnishes Used for Various Methods of Engraving; Impressioning the Finished Work; Turning off Rollers or Cylinders; Polishing Rollers; Electroplating or Depositing, Oils and Varnishes for General Use; Newer Developments of Engraving and Printing. The work is freely illustrated and will be welcomed by calico printers.

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Investigating an Industry; by William Kent; 126 pages, 5 by 7 1/4; John Wiley & Sons, 432 Fourth Ave., New York. Price $1.

The author of this book, who is well known as a consulting engineer, calls attention to the importance of careful investigation of conditions in

the management of industries. He treats the subject under the following heads: General Considerations, A Business Diagnostician, The Diagnosis, The Accounting and Sales Departments, The Doctor's Preliminary Report; The Salesmen's Conference, The Doctor's Opinions and Recommendations, Proposed Reorganization of the Board of Directors, Duties of the Functional Committees of the Board of Directors, A New Kind of Factory Export, Locating and Industry.

Sweater News; by Sweater and Fancy Knit Goods Manufacturers' Association, 320 Broadway, New York. Price $1.00 per year.

This is a monthly trade journal, devoted exclusively to the interests of the sweater coat and fancy knit goods industry, according to the prospectus and salutory editorial contained in its first issue. It is the outgrowth of the recent strike in that trade in Greater New York when the sweater manufacturers got together and formed an organization to protect their interest. It was decided that it would be desirable to have a regular organ to represent them and Sweater News has been established with Harold R. Lhowe as editor and business manager. It is well printed and attractive in appearance.

Calendar for the Cotton Industry, 1914 (Das Illustrierte Jahrbuch mit Kalender fuer die gesamte Baumwoll-Industrie); 450 pages, 3 1/2 by 6 1/2; published by H. A. Ludwig Degener, Leipzig, Germany. Price $1.25.

The 35th edition of this calendar contains a large amount of technical information relating to cotton manufacturing. The contents are arranged under the following heads: History of the cotton industry, cotton growing and grading, statistical, cotton spinning, twisting, weaving, equipment of cotton mills, numbering and testing cotton yarn, comparative yarn tables, cloth calculations, marks used in the yarn and cloth trade, tables of coinage, weights and measures, miscellaneous. The text is in German.

BUSINESS LITERATURE

Yarns; A magazine devoted to "More Rope"; published by The American Mfg. Co., Brooklyn, N. Y., and St. Louis Cordage Mills, St. Louis, Mo.

The consolidated house organ of the above mentioned companies appears this month with a very attractive cover and a new name. The cover is a striking design representing an old time ship under full sail. The illustrations are a fine sample of the photo engraver's art and the whole makeup of the magazine is attractive and a good example of a house organ that will be read. They have not made the too frequent mistake of putting in so much matter that it discourages the busy man.

The White Star Valve; The Wm. Powell Co., Cincinnati, O.

A 16-page booklet describing and illustrating the Powell "White Star" valve. These valves are specially adapted for power plant service of every kind. For high-pressure steam service or superheated steam they have given excellent satisfaction. The booklet will be sent to anyone on application.

The Belting Manual; The Graton & Knight Mfg. Co., Worcester, Mass.

This is a new edition of the previous booklet, "Care of Belting," which has been considerably elaborated to include additional mechanical rules and tables, new rules for lacing belts, suggestions for ordering belting, how to get the best belt for special conditions, and the comparison of various forms of power transmission. The catalogue contains many excellent illustrations of the processes necessary to convert leather into belting, beginning with the trimming of the hides down to the belts packed ready for shipment.

The Simplex Manual; The Simplex Wire & Cable Company, Boston.

The 92 pages are full of tables and other information of all sorts about insulated conductors and other matters electrical, and are served by a very complete index. Printed on a fine, thin paper, and bound with stiff covers, this booklet just fits the pocket. Every electrical man having anything to do with wiring problems should have a copy.

Kron Scale, 39 Cortlandt St., New York, N. Y.

The American Kron Scale Co. has issued a handsome catalogue describing and illustrating in detail the different types and models of the automatic springless scales for warehouses, factories, mills, etc., where quick and accurate weighing is essential. Their motto is "Load and look." Only one operation is required, as the Kron scale weighs as fast as the swiftest workman can handle the goods. The moment the load is placed upon the scale the pointer moves instantly to the figure on the dial, showing the exact weight and stops there at once. There are no weights to change or adjustment to make. A thousand pound load can follow a fifteen pound package as rapidly as the scale can be unloaded. They are made in platform type of several styles; portable platform scales adapted for different requirements and industries, and there are several models especially suited for textile mills.

COLOR CARD

A sample card, descriptive of the comprehensive line of Alphanol Blacks, which comprise a series of eight dyestuffs particularly adapted to the dyeing of blacks on wool in one bath, fast to washing and milling, has just been issued by the Cassella Color Co., 182 Front St., New York. This folder is illustrated by sixteen dyeings, each type represented by two dyeings showing different shades of the same black. The folder is made complete with ample technical directions that are explanatory of the methods of applying these several blacks to the different classes of woolen goods, for which they are particularly adapted.

CALENDARS

The National Silk Dyeing Co., of Paterson, N. J., has sent out a calendar which is certainly a work of art. It is a genuine Barbizon print from the original painting by Edward Lamazure entitled "The Groves were God's First Temples." It represents a beautiful scene in a primeval forest, looking through the tall trees to the sunset beyond. The coloring is very fine.

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"The Country Gossips" is a reproduction in color photography of an oil painting by Henry J. Dobson, one of the foremost painters of old Scottish life and characters, and is a very attractive headpiece for a calendar sent out by Speed & Stephenson, well known worsted machinery and supply agents, 170 summer St., Boston, Mass. It has a touch of real life and is very attractive in design and finish.

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The Dominion Wool Stock Mills, Ltd., Toronto, Canada, have sent out an attractive calendar appropriate to their business, showing a sunset scene in the Canadian Northwest with a flock of sheep in the foreground.

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George Thomas & Co., Manchester, Eng., machinery importers and exporters, send their compliments to their friends for the New Year in the shape of a very attarctive calendar representing a primitive scene with Indians weaving Navajo blankets.

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The N. E. Tank & Tower Co.'s calendar for 1914 is surmouited with a composite view of a number of different installations of their work showing both wood and steel tanks and towers, steel frame buildings, trusses, bridges, etc. They make a specialty of tanks and vats for dyers' and bleachers' use, also tanks for automatic sprinklers. The character of the work is shown in the illustrations.

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The Buffalo Forge Company has opened offices at 176 Federal St., Boston, Mass., for its fan, ventilating and pump departments, being represented in the New England Territory by B. R. Andrews, formerly with the B. F. Sturtevant Company.

E. T. Lyle, New England manager of the Carrier Air Conditioning Co., has also taken offices in the same building.

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The Philadelphia Textile Machinery Co., of Philadelphia, Pa., are sending out a monthly sheet calendar to the trade. The figures are of a practical and sensible size and it will be acceptable wherever sent. It shows the different makes of machines at the top in their established green color. This has become a recognized trade mark to all their customers who have been receiving their literature.

Industrial Notes

GRINNELL AUTOMATIC SPRINKLER BULLETIN

The January issue of this quarterly bulletin, issued by the General Fire Extinguisher Co., is especially devoted to the prevention of fire tragedies at sea, such as the recent burning of the Volturno with a loss of 136 lives. There are several diagrams showing the installations of sprinkler equipments on large steamships and they predict that it will ultimately be a requisite feature of every first-class passenger ship.

A class of buildings which will follow the lead of the department stores, cotton mills and other factories with sprinkler equipment is the hotels. The company claims that, not only as a safety appliance reducing the fire risk 95 per cent., but as a business proposition reducing the insurance rates 40 per cent., the hotel proprietors will eventually fall into line.

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A CONFERENCE ON COTTON

The Arkwright Club entertained a number of experts of the Department of Agriculture at a luncheon at Young's Hotel, Boston, on January 21. The object of the conference was to consider methods of producing and marketing cotton. The government experts at the luncheon were Charles J. Brand, chief of the office of markets; C. S. Scofield, agriculturist in charge of western irrigation; Walter T. Swingle, physiologist on crops; Thomas H. Kearney, physiologist on drought and alkali resistant plants, and Fred Taylor, a Government cotton technologist. General S. M. Weld made an address in which he outlined the views of the brokers and manufacturers.

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PFALTZ & BAUER, INC.

The firm of Pfaltz & Bauer, which has been in business for the last fourteen years, has recently been incorporated under the style of Pfaltz & Bauer, Inc. Henry Pfaltz is the president; Frank M. Bauer, vice-president and treasurer; T. E. Price, secretary. They are the sole agents in America for the Erste Deutsche Ramie Gesellschaft, manufacturers of ramie yarns in all numbers for knitting weaving and lace manufacture. They retain the same offices at 300 Pearl St., New York City.

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THE BOSTON WOOL TRADE ASSOCIATION

The annual banquet of the Boston Wool Trade Association was held at the Copley-Plaza Hotel, Boston, on January 7, over two hundred members and guests being present. The speaker of the evening was John Kendrick Bangs, who gave personal reminiscences of President Wilson, Col. Roosevelt, former President Taft, Senator La-Follette, Kipling, Henry Labouchere, Dr. Van Dyke, James J. Corbett, Julia Ward Howe and Mark Twain. The souvenir of the occasion was a copy of Mr. Bangs' latest book placed at each plate.

THE PENNSYLVANIA MANUFACTURERS' ASSOCIATION

This organization held its fourth annual meeting in Philadelphia on January 12. Joseph R. Grundy, the president, criticised severely the Pennsylvania legislators in connection with the legislation affecting manufacturing industries. He urged that the association oppose the passage of the minimum wage bill by Congress. John P. Wood, the vice-president of the association, advised a meeting of the entire membership in Philadelphia for the purpose of drafting a workingman's compensation bill.

The election of officers resulted as follows: Joseph R. Grundy, president; John P. Wood, first vice-president; J. H. Schwacke, of William Sellers & Co., Inc., second vice-president; Joseph S. Rambo, of Rambo & Regan, Inc., Morristown, Pa., treasurer. The executive committee consists of these officers and the following textile manufacturers: Charles E. Leippe, Reading (Pa.) Knitting Mills, and President of the National Association of Hosiery & Underwear Manufacturers; J. M. Harris, Phoenix Silk Manufacturing Co., Pottsville, Pa.; E. A. Soleliac, Adelaide Silk Mills, Allentown, Pa.

NEW BEDFORD TEXTILE SCHOOLS

This is the first year that the textile school year in New Bedford has been divided into two terms with a midyear enrollment. This arrangement has been made for the benefit of those who failed to enroll in September. The plan works very well.

During the thirteen years the New Bedford school has been open, over seven thousand students have attended the day and evening classes. A recent canvass for statistics showed that in New Bedford alone eight mill treasurers, thirteen superintendents, eighty-six overseers and seventy-seven second-hands had been students at the school, altogether a total of one hundred eighty-one mill officials in New Bedford alone.

Like the Massachusetts Institute of Technology and other technical training schools and institutions, the demand made now for graduates is greater than the ability to supply men whom the management is willing to recommend for responsible positions.

Courses this summer will be given in chemistry, dyeing and allied subjects during July if enough students enroll to make it worth while. These summer courses are intended to meet the needs of men working in the mills or finishing establishments who wish to broaden their knowledge and take advantage of the quiet summer vacation period to do so.

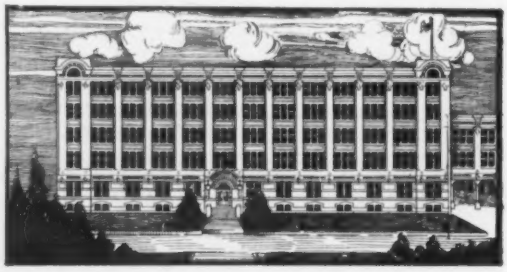
THE ARABOL MFG. CO.

Sizeoleum makes a most satisfactory sizing when mixed with Arabol or potato starch. The mixture is recommended for cotton warps, sheetings, domestics and print cloth warps. It is well liked in the South on account of its resistance to all climatic influences. Both Sizeoleum and Arabol starch are products of The Arabol Mfg. Co., New York.

ENLARGING ITS PLANT

The New Departure Mfg. Co., of Bristol, Conn., will shortly occupy its large and handsome administration building which has been in the course of erection for the past twelve months. The growth of this company in the past few years has made it necessary to make several large additions to its facilities.

A short time ago the extensive plant of the Whitlock Coil Pipe Co., of Hartford, comprising 145 square feet of floor space, was bought and occupied. Soon still further additions became necessary and it was decided to erect the building shown in the illustration, which is 62 feet wide, 220 feet long and 6 stories high including basement.



NEW BUILDING FOR THE NEW DEPARTURE MFG. CO.

The building is modern in every detail of construction and absolutely fire-proof. The office quarters, which were formerly inadequate, are located on the fifth floor of this building and handsomely finished in mahogany. Arrangements for serving luncheons are provided.

The remainder of the building is occupied principally for the inspection and assembling department. The first floor is given over to shipping and receiving.

This company started business 25 years ago with less than 50 square feet of floor space and now occupies nearly 50 square acres.

Beginning January 1st, changes were effected in the organization. Albert F. Rockwell, who was one of the founders of the company and whose genius has developed the patents covering the company's product, has been relieved of certain managerial detail but continues as president of the company. De Witt Page, who has also been identified with the company almost from its inception and in later years, as secretary, sales manager, purchasing agent and advertising manager, has been appointed general manager. Mr. Page is well known to the trade and brings to his position unusual abilities and a knowledge of the company's affairs in production and promotion that specially qualified him for the position. Charles T. Treadway, who for some years past has been treasurer of the company, continues in that capacity, but also becomes Chairman of the Board of Directors.

FOREIGNERS APPRECIATE AMERICAN PRODUCTS

It was with considerable gratification that we examined a batch of letters received from abroad by one of our advertisers. While some of these letters showed that they were received as a result of advertising in other lines, others were received from Textile World Record subscribers and indicated how thoroughly its advertisements are read, even by those far removed from the headquarters of the advertisers.

These letters were received by the Thomas K. Chaffee Co., Providence, R. I., and referred to Chaffee's Mill White. This company says: "It is probably of interest to the average manufacturer to know just how close foreign concerns are watching American products and investigating, as far as possible, just what these products will do and to what extent they can be adapted in their own country. This seems to be the case, not only with new, but also with old products, which they think may have special merit."

"Is it not possible that we are just a little bit puffed up with pride from our own business and fail to watch foreign products as closely as the foreigners watch ours? Would it not be to our advantage to watch them at least as sharply as they are apparently watching us?"

"The inquiries regarding Chaffee's Mill White Paint would indicate that many of these foreign concerns are considerably behind us in the painting of their factories, as some of the letters show white wash, lime, etc., are being used instead of paint. However, they show that they are anxious to get a permanent light diffusing finish from a product like ours, that is not only economical, but of course far superior to cold water paints, lime mixtures, etc."

A NEW CLUB IN THE KENSINGTON DISTRICT

Realizing the long existing necessity for a first class dining club for the business men of Kensington and their associates, several prominent men of this important manufacturing district assembled at a meeting held on Tuesday, January 13th, and formed an organization with the following temporary officers: President, Theodore F. Miller, of the Stead, Miller Co., corner Fourth and Cambria Sts.; Vice-President, Charles F. Bochmann, of F. A. Bochmann & Co., Inc., Second and Cambria Sts.; Treasurer, S. Selig, of the Moss Rose Mfg. Co., Hancock St. and Allegheny Ave., and Harry Lonsdale of F. A. Bochmann & Co., Inc., as Secretary.

The club will be known as the Cosmopolitan Club. For the benefit of all interested two classes of membership have been established, one to be known as patron or firm members and the other as members. The property at the southeast corner of Lehigh Ave. and Second St. has been purchased. This location is about the center of the Kensington District. Extensive alterations are to begin at once in order to render the building suitable for club purposes. A man who formerly was connected with one of the well-known clubs of Philadelphia has been selected as steward.

As the organization is to be a permanent one and to be used for other than dining purposes, the club solicits the active and financial aid of all business men and their associates, regardless of locality. Those who have already subscribed are E. F. Houghton & Co., $500; Moss Rose Mfg. Co., $250; Sykes Bros., $250; J. W. Hepworth & Co., $100; F. A. Bochmann & Co., Inc., $250; Joseph R. Foster & Sons, $100; Stead, Miller Co., $250; Philadelphia Textile Machinery Co., $250; John J. Campbell, $100; John W. Patterson, $100; Thomas Develon's Sons, $100, and Robert Krook, $100.

BUSINESS NOTES

E. Sutro & Son Co., manufacturers of silk and mercerized hosiery, have been appointed the sole selling agents for the United States for a very fine line of ladies', boys', men's and misses' cotton, woolen and worsted knit gloves, manufactured by T. Billson & Sons, Leicester, Eng. Their salesroom is at 346 Broadway, New York City. The line includes "Wolsey" and "Viyella" brands.

J. A. Del Mar & Co., selling agents for underwear, sweaters and bathing suits at 366 Broadway, New York, have leased larger quarters in the same building to accommodate their increasing business. They are showing some fine lines of novelties, including some unique styles in cutaway knit coats and long napped sweater coats, knit turbans, etc.

Thomas Muir & Co., selling agents for underwear and sweaters, for many years located at 253 Church St., have moved to 346 Broadway (N. Y. Life Bldg.), 10th floor.

R. Keiva Friedman has retired as partner in the Modern Knitting Mills, manufacturers of silk and knitted underwear, Philadelphia. The firm obligations are assumed by William Gordin, who continues the business.

The Graton & Knight Mfg. Co. have recently published a series of colored folders illustrating different features of their product, attracting attention by the beauty of the design and color scheme as well as the interest in the contents. Each folder brings out some different feature. One, which illustrates the home office and factories as well as pictures of branches in the different cities of the country, gives photographic testimony of the magnitude of this industrial enterprise. It started in 1851, was incorporated in 1872 with a capital of $100,000, and now has a "paid in" capital of $2,000,000, and an enormous plant for tanning and currying hides and manufacturing them into leather belting.

Henry Seath has been appointed overseer of spinning at the Belknap Knitting Mills Corporation, Laconia, N. H. He comes from Woonsocket, R. I.

THE TEXTILE EXHIBITION

As the time for the fourth national textile exhibition to be held in Mechanics Building, Boston, April 27 to May 2, draws near it becomes more evident that the show is assuming a wider scope than the most enthusiastic directors hoped for. The exhibits will not be confined to any one particular branch of the industry, for there seems to be a movement among the industry as a whole to put its best foot forward at the coming show. At the previous exhibitions in Boston the displays have been made, in most instances, by the cotton branch of the industry. The list of concerns that have contracted for space thus far for the coming exhibition indicates that the woolen, knit goods and hosiery industry will have a large representation. The commercial engineers' department will show a large number of improved steam and electric power plants and appliances. This particular branch of the exhibition has assumed very large proportions.

On the whole the exhibition ought to be a fine one, as during the two years intervening between exhibitions there have been an unusual number of meritorious inventions and a great number of these will be shown in operation. Even though 125,000 square feet of space will be devoted to the show, yet it is clear to Manager Chester I. Campbell that every particle of floor space will be contracted for a month before the doors open. At this time, he states, there are only a few desirable spaces open. The educational side of the show will no doubt call forth great interest, as three textile schools in Massachusetts and another in the South have contracted for space to show the work that is being accomplished in this direction.

THE BOSTON WOOL TRADE ASSOCIATION

An interesting lecture was delivered to about 100 members and guests of the Boston Wool Trade Association by F. Nathaniel Perkins, on January 29. He gave a sketch of the development of the Boston wool trade and of the methods of growing and marketing wool in various parts of the world. His talk was illustrated with stereopticon views, including photographs of prominent members of the Boston wool trade in its early days. Mr. Perkins made special reference to the question of conditioning, which is attracting much attention in the textile industry at the present time. He suggested that the wool dealers determine what conditioning means to them by having samples drawn from their stocks of scoured wool and tested by the National Bureau of Standards or the United States Conditioning and Testing Co., New York. This suggestion was very favorably received. Mr. Perkins was vigorously applauded during and at the close of his address.

The Phoenix Underwear Co., Little Falls, N. Y., will place in operation in its power house a new 625 kv-a. alternating current generator, which will be built and installed by the General Electric Company.

TESTIMONIAL TO JOSEPH R. GRUNDY

Over four hundred manufacturers and public men of Pennsylvania attended a banquet at the Bellevue-Stratford Hotel, Philadelphia, on January 27, for the purpose of testifying to their appreciation of the services rendered by Joseph R. Grundy in defense of the industries of Pennsylvania. Wilson H. Brown, of Philadelphia, who presided, stated in his opening remarks that the occasion had no political significance, but was nonpartisan in character and intended as a mark of the friendship and esteem in which those present held Mr. Grundy. Mr. Brown said in part:

"The inception of this dinner was the thought of the manufacturers of Pennsylvania. It has broadened to include some who are not directly engaged in manufacturing but who nevertheless know of the worth and good citizenship of the guest of the evening.

"We are not here to honor one who has achieved distinction on the field of battle or in the arena of politics, but one who in his quiet, manly way has achieved distinction in his service to the industries of the State.

"There are present here tonight representatives of 70 industries from all parts of the State. To each of these he has rendered service without expectation of fee or reward—his motives have been impugned—his words have been distorted, and the malicious have held him up to public scorn—and for what?

"Because his work has made it possible that the industries that have made Pennsylvania, might live and prosper and through them, a vast army of workers could find employment that would enable them to live in comfort and happiness.

"He has represented us. Until tonight we have been in the background. I congratulate you that this demonstration gives to the public our confidence in the good faith and purpose of our guest.

"The manufacturers of Pennsylvania are associated tonight in a sentiment felt by one and all, that of respect and esteem for the chief guest of the evening. This is not a dinner of the ordinary kind, but one in which we offer for the first time a public tribute to one of us.

"Our homage is rendered with love and enthusiasm for his service, not alone to us personally as leaders of the industries of the State, but also for his devotion to the welfare of all the humbler citizens and workers dependent upon our industries.

"Our homage is rendered to the man who, with his modesty, fortitude and sacrifice of personal interests has made himself felt for the general good.

"He has always warred valiantly, honestly and in good faith against

"'. . . the wrongs that need resistance,
For the cause that needs assistance,
And for the good that he can do.'

"It is not my privilege to make an address this evening. I am here as the official rapper of the occasion. My functions ar to preserve order and to introduce the speakers. You will note that there are no set toasts for the evening. This is not without its significance. The commission felt that toasts announced were but the starting point for the speaker, but to which point he never re-

turned. We desire to save the speakers this embarrassment. This is not a dinner with any political significance. No one has an axe to grind, no one has a candidate to boom. The whole inspiration of this dinner is one of friendship and regard for the guest of the evening." (Prolonged applause.)

Just before Mr. Grundy addressed the banqueters William I. Schaffer arose and in a brief speech presented to Mr. Grundy a hall clock with cathedral chimes. In his response Mr. Grundy said in part:

"If there is anyone so base that he could misrepresent or distort the spirit of genuine friendship which pervades this company, 'let him make the most of it.' I am more than willing to shoulder in person whatever criticism may be unloaded upon this assembly, for that token of esteem is infinitely dearer to me than the silence or even the approval of your critics and mine. (Applause.)

"I am glad it is a clock you have given me. There is an animation, a companionship, a humanness about a clock which no really inanimate object possesses. It will speak to me through the years of you—all of you. It will be a constant reminder that it is time to be up and doing for the cause of American industry; time to lend whatever encouragement I can to old fashioned American thrift and energy; time to combat the tendency to make legislation take the place of personal effort; time to rally to the support of honest labor and to the protection of the fruits of honest labor; time to remember that we are Americans and not Russian anarchists.

"I suppose if there is a time in a man's life when he can say the things he wishes to say it is upon an occasion like this. Environment and early education are potent factors in shaping our lives. I do not remember when I was too young to appreciate the deep concern that my father always felt with respect to the effect of legislation upon business. Then as now our home was in a manufacturing town where there also resided the foremost member of our country bar, my father's neighbor and personal friend, a man who served his government with distinction at Washington and his State with credit at Harrisburg. His son tonight honors us with his presence at this board.

"How well do I remember as a lad the evenings when long after the hour that should have seen me in bed in order that I might turn out in good shape when the 6.30 whistle blew in the morning, sitting up listening to the discussions of Colonel Gilkeson and my father upon the tariff, the various governmental proposals affecting the business interests of the country, the sectional influences at work in shaping the policies of our government, and a wide range of subjects involving the welfare and development of our country.

"It was then a realization was awakened that if we are to have good business we must have good business government, and that the wonderful business growth and expansion our country had experienced since the outbreak of the Civil War had been due to the fact that legislation framed by thoughtful patriotic men familiar with business problems laid a foundation upon which this development was reared.

"What has ocurred in our country in the last fifty years, and more notably in the last twenty years of our national history, is but the realization of the dreams of those patriotic men who founded our republic. It was the dream of Washington, Hamilton and Jefferson that our country should be as free from foreign domination in the trade requirements of our people as they had made us free from foreign domination in the control of our public affairs. (Applause.)

"That we have been longer in the realization of the ambitious hopes of the founders in an industrial way than they were in freeing us from foreign political domination, is only an evidence of the dangers which lurk in sectional interests and trade treaties and the political difficulties in maintaining a fixed national policy. These dangers and difficulties were successfully overcome in the last twenty years and today we stand industrially preeminent.

"I refer to this history that we may each reflect on the vicissitudes which have surrounded the upbuilding of industrry in this country, and I wish each one of you would ask himself this question: Should we not maintain and hand down unimpaired our splendid inheritance? If the upbuilding of the wonderful industrial fabric which is alike the envy and admiration of the world was worth the struggle of those who were responsible for its creation, should it not awaken in us a desire to maintain and hand unimpaired to those who are to be our successors, this splendid heritance? (Applause.)

"I take this generous outpouring of Pennsylvania manufacturers to mean that they are alive to the inter-dependence of legislation and business: that they are aware of the peril of the demagogue and the agitator, and that they realize with each forward movement made by industry supplemental legislation should be passed—legislation equitable and just to all.

"With this is the inspiration of tonight's gathering, I can but add, Mr. Toastmaster, you built more wisely than I knew."

Among the other speakers were Howard I. James, Ex-Judge Dimner Beeber, Governor Charles R. Miller, Nicholar Larzelere, E. J. Stackpole, Hon. J. Hampton Moore and ex-Judge N. N. Porter.

DOING AN INTERNATIONAL BUSINESS

At a recent interview of our representative with Niel Gray, Jr., proprietor of Oswego Machine Works, of Oswego, N. Y., we learned that these works were busy turning out the complete line of Oswego cutting machines for paper mills, paper dealers, printers, wall paper manufacturers, textile manufacturers, etc. This plant employs the highest skilled mechanics and is equipped with up-to-date and latest improved machinery and tools, so that the product is of the highest quality, the best materials and workmanship only going into them. Every department of the United States government in which cutting machines are used is equipped with Oswego cutting machines, and Oswego machines can be found in almost every country of the world. The line of Oswego machines to which we call the attention of our sub-

scribers consists of the machines for straight cutting and pinking, which are in use in representative mills of this country. The adoption of these cutters by many American concerns indicates their success on all kinds of textile fabrics. The Oswego cutting machines are made in many sizes and styles, from 19 inches to 84 inches, and carried in stock for prompt shipment. The Oswego Machine Works are always ready to give any information desired by prospective customers and we take pleasure in recommending their product to any mills contemplating any additions in this particular line.

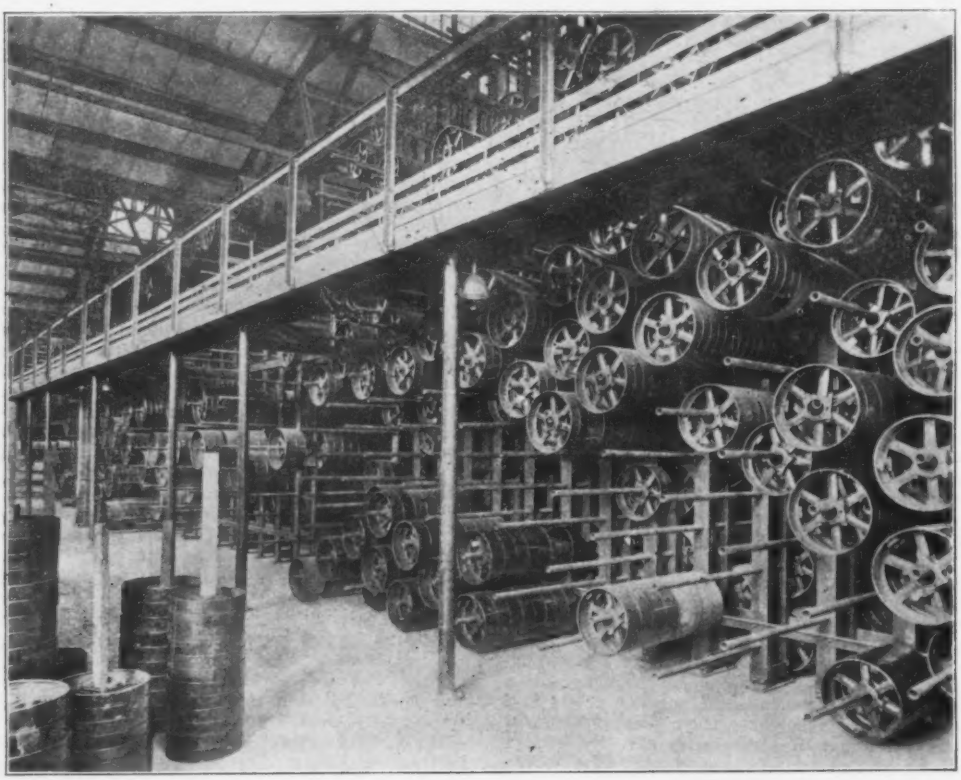
JAPANESE WOOLEN MILL TRUST

Representatives of the leading woolen factories met in conference in Yokohama at the instance of the Japan Industrial Association, to consider a proposal to combine the existing concerns into a trust. The decision arrived at is said to have been that a combine should be effected as soon as the Senju woolen factory has been transferred to private hands. It is understood that the government has already decided to sell the factory to the trust at a price covering the amount of capital invested in the enterprise.

THE AMERICAN PULLEY COMPANY'S PLANT

Recent improvements at The American Pulley Company's plant in Philadelphia have increased its manufacturing capacity 24 per cent.

The new warehouse, which will easily store 40,000 belt pulleys, insures ample facilities for storing stock sufficient to meet increasing demands.



FACTORY STORAGE ROOM FOR LARGE SIZE BELT PULLEYS IN THE AMERICAN PULLEY CO'S PLANT

This building is absolutely fire-proof. It has brick walls, tile roof, concrete floors, metal racks, metal bins and shelving, and metal window frames. There is more floor space under this one roof than was occupied by the entire "American" plant when established here nearly 14 years ago.

The second floor of the new building is being used as offices, the former office space being utilized as an addition to the machine shop.

The officers of the company look for conservative business for the present, but expect general improvement when the political situation has assumed a more settled aspect.

Fred Newcombe has accepted the position of overseer of weaving at the Manton Mill, American Woolen Co., Manton, R. I., to succeed Michael Horragan.

LESSONS OF EXPERIENCE

By CHARLES R. TROWBRIDGE, of the Dodge Mfg. Co.

In getting power from the point where it is generated to the point where it is to be utilized, there is room for the exercise of much judgment and care.

The first steam engines were built to pump water from mines. Since they were intended to be connected to vertical reciprocating pumps, they were built with vertical cylinders fitted with reciprocating pistons; and as it was not considered practicable to place them directly over the pit, the heavy parts of the engine were placed on one side and a beam used to reach out over the hole and make the connection with the pump rod, which extended down to the flooded workings. Here was a direct connection between the power and the resistance; but when, later on, it was found desirable to drive mill machinery by steam power, nothing better could at first be thought of than to take the pumping engine and chop off the upper end of the pump rod, in order to connect it to a crank. The crank was a necessity, because the mill machinery was mainly rotary in its movements and could not be worked like a pump. It took several generations to discover that the beam was unnecessary when there was no pit's edge to reach over, and it has taken several more generations to accumulate a really valuable fund of experience for use in other departments of power transmission.

Today, however, things are beginning to be reasoned out from end to end. In many cases it is found possible to use prime movers which are themselves rotary instead of reciprocating, and in nearly all instances the power from the engine, steam turbine, hydraulic turbine or other motor is delivered to the point where it can really do some work in a scientific and efficient manner.

In some cases electric transmission is found desirable for at least a portion of the way, especially in the last stretch, connecting with a motor on the tool. In other instances—probably, as yet, the majority of cases—nothing better has been found than a leather belt running over a pair of pulleys. In very many situations, however, the use of rope transmission meets the demands of the work better than either of the others, and the widely extending use of the rope drive is an indication of its fitness for the purpose.

Originally the use of a rope instead of a belt seemed to be a very simple matter; it was a sort of round belt, running in grooved sheaves instead of over cylindrical pulleys, a thing that anybody could rig up. When, however, it was desired to use rope driving for larger power transmissions than could be effected by a single rope, the first idea was to use two or more separate ropes side by side, assuming that they would pull together as well as they had done separately. This combination—the so-called "English" system—works well in some instances, just as the walking beam of the early mill engines worked well, although it belonged to a really different kind of work. Later experience, however, developed the "American" system, using a continuous and endless rope in the place of a number of separate ones, and thus began the scientific development of the rope drive, permitting the employment of a separate tension sheave and enabling all kinds of problems to be met and all directions to be made possible in power transmission.

With this wiping off of the slate and the making of a fresh start came the opportunity to develop a really complete system of rope transmission, and during the twenty-five years in which this development has taken place there has been accumulated a fund of experience covering almost every possible case which may occur in practice. This experience permits the installation of rope transmissions with a minimum of friction loss, of noise and of maintenance cost, and assures the attainment of maximum efficiency, durability and economy.

THE GLIDDEN VARNISH COMPANY

The business of the Glidden Varnish Co., Cleveland, O., has increased over 100 per cent. in the past five years, which is a conclusive evidence of the merits of their products. They make a specialty of high grade goods. All the varnish is thoroughly aged before being placed on the market. They have a well equipped laboratory and a corps of chemists engaged not only in regular industrial work, but in research work in order to bring the Glidden products to still high standards of quality. Their customers can avail themselves of the work of the service department at any time without cost. This is found to be a great advantage in many cases.

TREASURY DECISIONS

T. D. 34,015. Dec. 26, 1913. Drawback on clothing. Drawback on men's, youth's and boys' clothing manufactured by the F. B. Q. Clothing Co., New York, with the use of imported woolen and worsted fabrics.

T. D. 34,042. Jan. 3, 1914. Silk plush. Black silk plush less than 26 inches wide including the selvage properly dutiable at the rate of 45 per cent. ad valorem under paragraph 318, tariff act of 1913.

T. D. 34,044. Jan. 5, 1914. Silk strings for musical instruments. Silk strings for musical instruments properly dutiable at the rate of 45 per cent. ad valorem under paragraph 318, tariff act of 1913.

T. D. 34,062. Jan. 15, 1914. Filled cotton cloth. So-called green cloth which has been treated with a solution of copper and wax to be assessed at 25 per cent. ad valorem under paragraph 254, act of 1913, after 30 days from the date thereof.

T. H. Donlevy has been appointed superintendent of the Brickner Woolen Mills Co., Sheboygan Falls, Wis. He comes from Beaver Dam, Wis.

George Verity, second hand in the weaving department of the Stillwater Worsted Co., Harrisville, R. I., died at the Rhode Island Hospital in Providence, R. I., after an operation for appendicitis. Mr. Verity was 35 years of age, married and a member of Granite Lodge No. 33, I. O. O. F.

Recent Textile Patents

BATHING GARMENT. 1,084,106. William W. Pelton, Chicago, Ill.

BRAIDING MACHINE. 1,082,981. Simon W. Wardwell, Providence, R. I.

CLOTH BOARDS, Making. 1,083,593. Alfred M. Chaffee, Oxford, Mass.

DYEING. 1,082,627. Charles Goldstein, New York.

DYE VATS, Apparatus for Forming and Preparing Charges for. 1,083,410. John T. Psarski, Cleveland, O.

ELASTIC FABRIC. 1,082,966. George C. Moore, Worcester, Mass.

EMBROIDERY SEAM, Circular. 1,083,601. Max Druckerman, Brooklyn, N. Y.

FABRIC HEATING Apparatus, Coated. 1,084,513. William B. Wescott, Boston, Mass.

FABRICS DURING WEAVING, Treatment of. 1,083,462. Emil Prein, Hanover, Germany.

KNITTING MACHINE. 1,084,559. Joseph A. Mills, Loughborough, Eng.

KNITTING MACHINE Needle-controlling Transfer Means. 1,084,778. Joseph H. Zens, Milwaukee, Wis.

KNITTING MACHINE. 1,082,881. Olivier Laroche, Lowell, Mass.

KNITTING MACHINE. 1,083,690. Niel McFadden, Franklin, N. H.

KNITTING MACHINE, Rib. 1,083,564. Robert W. Scott, Leeds Point, N. J.

KNITTING MACHINE, Circular. 1,084,194. William H. Blackburn, Nottingham, Eng.

LOOM, Jacquard. 1,083,303. George W. Stokes, Philadelphia, Pa.

LOOM and Like Shuttles, Threading of. 1,084,894. Harry A. Murphy, Preston, Eng.

LOOM SHUTTLE Feeler Mechanism. 1,084,878. Harry A. Davis, Hopedale, Mass.

LOOMS, Feller Mechanism for Weft-replenishing. 1,084,124. Eugene H. Ballou, Pawtucket, R. I.

SHUTTLE MOTION. 1,083,827. George C. Grower, Ansonia, Conn.

SKEINS ON REELS, Device for Binding. 1,084,193. Gustav A. Berthold, Chemnitz, Germany.

SPINNING MULES, Reversing Mechanism for the Band Cylinders of. 1,082,912. John H. Ryalls, Charlottesville, Va.

TEXTILE MATERIALS, Apparatus for Smoothing Hanks of. 1,083,003. Alexander Clavel, Basel, Switzerland.

UNDERGARMENT. 1,083,511. Edward R. Williams, Shoemakersville, Pa.

STOP-MOTION. 1,076,980. Frank H. Hall, Boston, Mass.

SHUTTLE-thread-replenishing Mechanism. 1,077,056. Farnum F. Dorsey, New York.

SHUTTLES, Friction Device for. 1,079,009. John Johnston, Woonsocket, R. I.

SHUTTLE. 1,078,261. E. H. Daudelin, Fall River, Mass.

STOCKING. 1,077,370. Frank W. Robinson, Reading, Pa.

SPINNING MULE. 1,079,302. John Lowe, New Bedford, Mass.

SPINNING MACHINES, Weight Lever for. 1,078,996. Ezra Dixon, Bristol, R. I.

SPINNING and Twisting Frames, Machine for Automatically Removing the Full Pirns in. 1,079,154. Fritz Watzlawik, Schoeneberg, Germany.

SKEIN or Thread Holder. 1,076,898. Nils Madsen, Westville, N. J.

SPINNING MACHINE. 1,076,805. Walter H. Yound, Pittsfield, Mass.

SPINNING APPARATUS, Traverse Motion for Yarn. 1,076,910. Alonzo E. Rhoades, Hopedale, Mass.

WARP STOP Motion Attachment. 1,078,215. George Patterson, Manchester, N. H.

WOVEN FABRIC. 1,077,227. Hector Le Doux, Worcester, Mass.

RECENT TEXTILE TRADE-MARKS REGISTERED

50,269. Hosiery. Mark: "Victory." Owner: Marshall Field & Co., Chicago, Ill.

73,127. Laces and ribbons. Mark: "Semiba." Owner: A. & L. Feldheim, Barmen, Germany.

73,597. Hosiery. Mark: Ray X. Owner: May Bormann, New York.

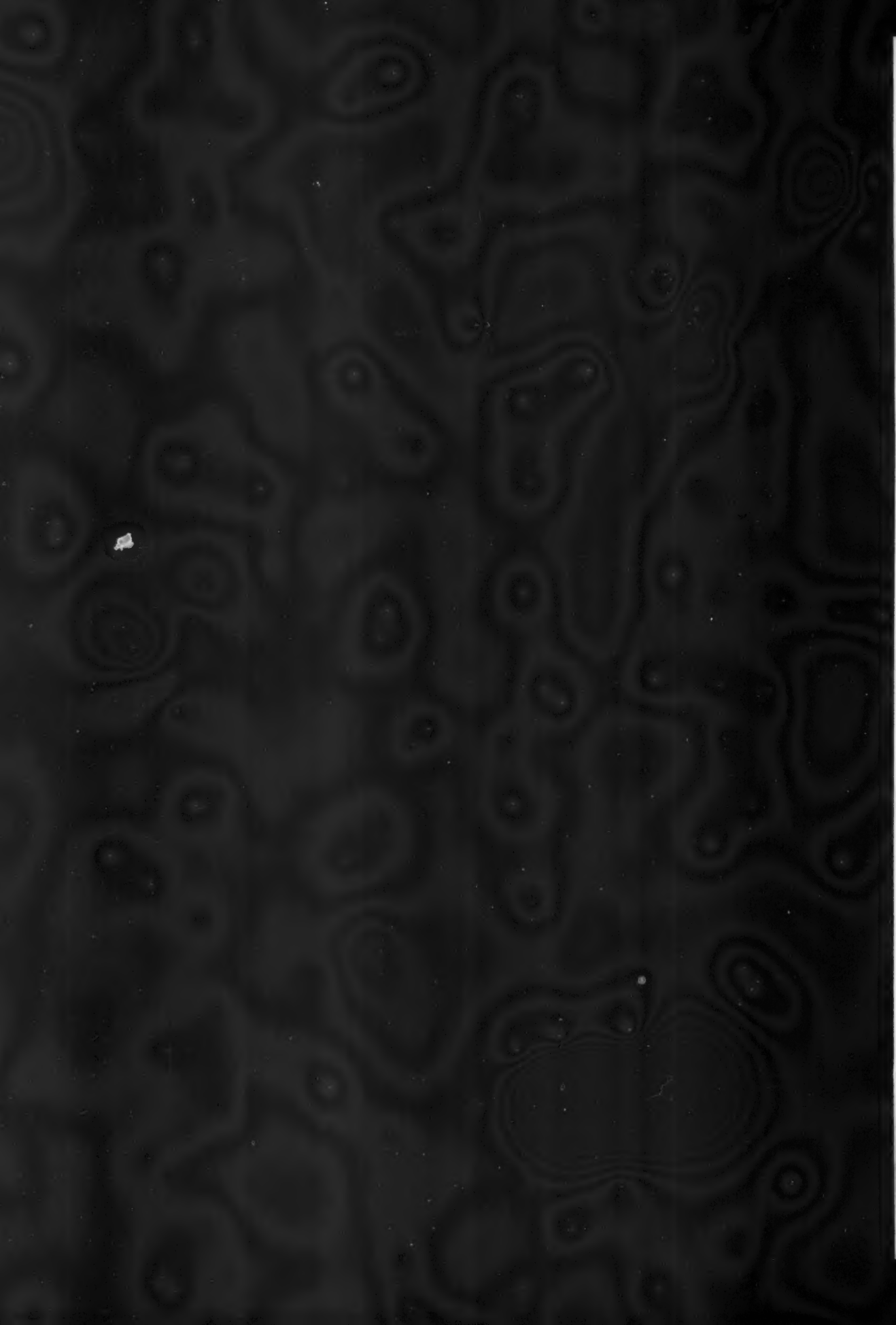
73,934. Woolen and worsted serges in the piece. Mark: Fastolite. Owner: Gus. L. Rosenberg, New York.

73,480. Knit goods. Mark: F. Meyer. Owner: F. Meyer & Sons, Brooklyn, N. Y.

73,922. Woolen dress goods. Mark: Ripple Cloth. Owner: Haas Bros., New York.

Sidney Blumenthal & Co., Shelton, Conn., will add to their equipment 40 small induction motors for direct connected electric drive and have ordered them from the General Electric Company.

The Stevens Mfg. Co., Fall River, Mass., will install an additional 150 h. p. motor and oil switches recently ordered from the General Electric Company.



C. E. RILEY COMPANY

65 Franklin Street, .. BOSTON, MASS.

COTTON AND COTTON GOODS YARNS

DIRECT IMPORTERS OF EGYPTIAN COTTON

COTTON WOOLEN WORSTED MACHINERY

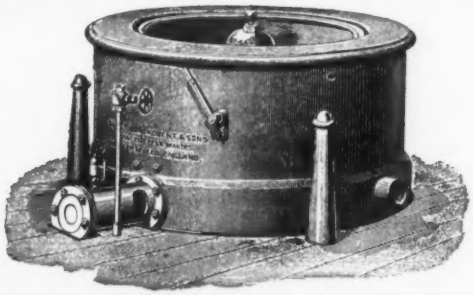
Thomas Broadbent & Sons,

Huddersfield, Eng.

PATENT DIRECT STEAM DRIVEN

HYDRO-EXTRACTORS

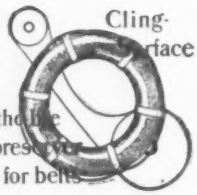
OVER 3500 IN USE. ALSO ELECTRICALLY DRIVEN



SUSPENDED ON LINKS. REQUIRING NO EXPENSIVE FOUNDATIONS.

C. E. RILEY COMPANY, Sole Agents 65 Franklin St., Boston, Mass.

Machines Kept in Stock in Boston



These Curves Show the Increased Pulling Power Produced by CLING-SURFACE

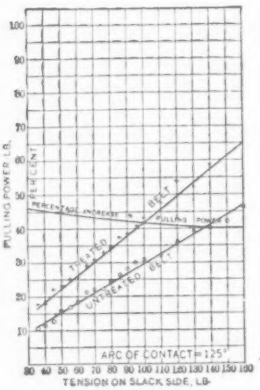
As they were plotted by Robert Thurston Kent, M.E., you can know they are authoritative.

Mr. Kent tested two new belts—one treated with CLING-SURFACE, and the other not. To make the tests perfectly fair both belts were first driven side by side in a New Jersey factory. Then, by means of a testing frame built especially for the purpose, some weights, and a polished rigid pulley, the comparative tests indicated by these curves were made.

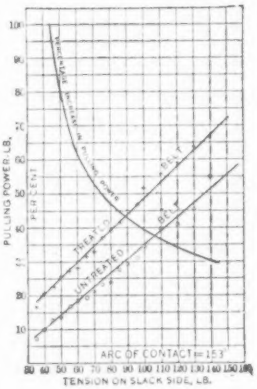
CLING-SURFACE stops slip; makes belts pliable, easy running, and long-lived; waterproofs; and reduces friction.

CLING-SURFACE is used all over the world with equal success—in the dryest, wettest, hottest and coldest climates.

Your order or inquiry will have our best and quickest attention.



40 to 46 per cent increase



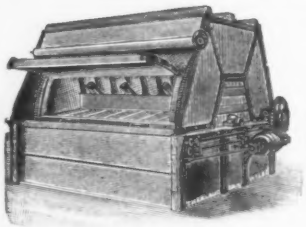
30 to 100 per cent increase

CLING-SURFACE CO.

1051 NIAGARA STREET, - BUFFALO, N. Y.

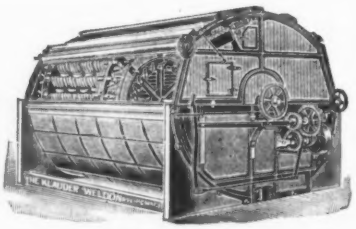
New York Boston Chicago Denver Memphis

73



RAW WOOL AND COTTON MACHINE.

MACHINES
sold on
2 MONTH'S TRIAL
YOU
TAKE
NO
RISK

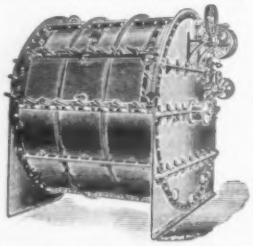


SKEIN AND SLUBBING MACHINE.

KLAUDER-WELDON DYEING MACHINE COMPANY

HUDDERSFIELD, ENGLAND. *AMSTERDAM, N. Y.*

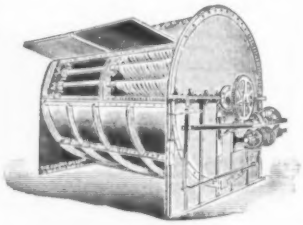
Machines for Dyeing, Bleaching and Scouring Woolen, Worsted, Cotton and Silk Skeins—Slubbing—Raw Cotton and Wool, Waste, Rags, Shoddy, Hosiery, Underwear, Hats, Caps, Knit Cloth, Tapes, etc.



SULPHUR HOSIERY MACHINE.

Special Machines for Sulphur Colors

WILL EARN THEIR COST IN LABOR ALONE
IN FROM
6 TO 12 MONTHS
ACCORDING TO CAPACITY



SULPHUR SKEIN MACHINE.

Buyers' Index

This department is conducted for the benefit of our subscribers. The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified index, may be found upon referring to their advertisements. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in the classification here given such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources. Advertisers whose names do not appear under headings to which they are entitled will please notify the publishers

Accountants and Systematizers.
Gunn, Richards & Co.

Air Moistening System.
——See Humidifying Apparatus.

Architects and Mill Engineers.
Cramer, Stuart W.
Dyer, W. E. S.
Ferguson, John W.
Main, Chas. T.
Myrick, J. W. H.

Asbestos Products.
Johns-Manville Co., H. W.

Asphalt Tanks.
Graver Tank Works, Wm.
Scaife, W. B., & Sons.

Automatic Feeds for Cotton and Wool.
Leigh & Butler.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Saco-Lowell Shops.
Sargent's, C. G., Sons.
Schofield, Wm., Co.
Woonsocket Machine & Press Co.

Bale Presses.
Saco-Lowell Shops.

Baling Presses.
Boomer & Boschert Press Co.
Philadelphia Drying Mchy. Co.

Ballers.
Saco-Lowell Shops.

Ball Bearings.
Hess Bright Mfg. Co.
S. K. F. Ball Bearing Co.

Bandings.
Lambeth Rope Corporation.
Sternberg, Fred, & Co.

Bands, Labels and Tickets.
Acme Print Co.

Baskets.
Lane, W. T., & Bro.

Beams (Steel).
Mossberg, Frank, Co.

Beamers.
Crompton & Knowles Loom Works.

Belting.
Bond, Chas., Co.
Gandy Belting Co.
Graton & Knight Mfg. Co.
Hood, R. H., Co.
——See also Mill Supplies.

Belt Cement.
Graton & Knight Mfg. Co.

Belt Dressing.
Cling-Surface Co.
Dixon, Jos., Crucible Co.
Graton & Knight Mfg. Co.
Stephenson Mfg. Co.

Belt Tighteners.
American Tool & Machine Co.
Dodge Mfg. Co.
Hunter, James, Machine Co.

Bindings.
— See Tapes and Braids.

Bleaching Kiers.
Arlington Mch. Wks.
Birch Bros. (Albert Birch, prop.).
Buhlmann, A. W.
Lockwood Manufacturing Co., The.
Philadelphia Drying Machinery Co.
Stearns Lumber Co., A. T.
Textile-Finishing Machinery Co.

Bleaching Materials.
Bosson & Lane.
Electro Bleaching Gas Co.
Marston, John P.
Roessler & Hasslacher Chemical Co.
Seydel Mfg. Co., The.
Worden Chemical Co.

Blowers and Blower Systems.
Autoforce Ventilating System.
Carrier Air Conditioning Co.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

Bobbins, Spools, Shuttles, Etc.
American Supply Co.
American Textile Specialty Mchy. Co.
Leigh & Butler.
Mossberg, Frank, Co.
Tebbets, E. L., & Co.

Bobbin Winders.
Altemus, J. K.
Lever, Oswald, Co.
Universal Winding Co.

Boilers.
——See Steam Boilers.

Boiler Graphite.
Dixon, Jos., Crucible Co.

Boxes, Box Shooks, Etc.
Pearson, J. T.

Box Tops.
Acme Print Co.

Braiding Machinery.
New England Butt Co.
Textile Machine Works.

Braids.
——See Tapes, Braids and Edgings.

Brass Hinges.
Root, C. J., Co.

Bridges.
Scaife, W. B., & Sons.

Burlers, Speckers, Menders.
Providence Mending Co.

Brushers.
——See Napping Machines.

Brushes.
Cocker, M., & Co.
Felton, S. A., & Son Co.
Mason Brush Works.
Parks & Woolson Machine Co.

Brushing Machines.
Buhlmann, A. W.
Parks & Woolson Machine Co.

Burr Pickers.
Curtis & Marble Machine Co.
Sargent's, C. G., Sons.
Smith & Furbush Machine Co.

Button-Hole Machines.
Reece Button-Hole Machine Co.

Button Sewing Machines.
Union Button Sewing Machine Co.

Calico Printers' Machinery and Supplies.
Arlington Mch. Wks.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Lockwood Manufacturing Co., The.
Schwartz, L. H. A., & Co.
Somerville Mach. Wks. (Albert Birch, prop.).
Taunton-New Bedford Copper Co.
Textile-Finishing Machinery Co.
——See also Dyeing, Drying, Bleaching, Machinery, etc.

Canvas Baskets.
Lane, W. T., & Bro.

Can Spindles.
American Textile Specialty Mchy. Co.

Carbonizing Machinery.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Lockwood Manufacturing Co., The.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sargent's, C. G., Sons.
Schwartz, L. H. A., & Co.
Somerville Mach. Wks. (Albert Birch, prop.).
Textile-Finishing Machinery Co.
Tolhurst Machine Works.

Card Clothing.
Ashworth Bros.
Buhlmann, A. W.
Firth, William, Co.
H. & B. American Machine Co.
Leigh & Butler.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Schwartz, L. H. A., & Co.

Card Feeds.
——See Automatic Feeds.

Card Grinding Machinery.
Buhlmann, A. W.
Dronsfield Bros.
Entwistle, T. C., Co.
Firth, William, Co.
Leigh & Butler.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Smith & Furbush Machine Co.

Carding Machinery.
Saco-Lowell Shops.

Carpet Machinery.
Altemus, Jacob K.
Crompton & Knowles Loom Works.
Curtis & Marble Machine Co.
Parks & Woolson Machine Co.
Philadelphia Textile Machinery Co.
Smith & Furbush Machine Co.
Textile-Finishing Machinery Co.

Castings.
Dodge Mfg. Co.
Hunter, James, Machine Co.
Lunkenheimer Co., The.
Schofield, Wm., Co.

Caustic Soda.
Wing & Evans.

Cell Driers.
Cell Drier Machine Co.

Cement Pans.
Scaife, W. B., & Sons.

Chain Belts.
Morse Chain Co.

Chemists.
Emerson Laboratory.
Little, Arthur D., Inc.
The Lunkenheimer Co.

Chenille Machinery.
Eppler's, John, Machine Works.

Cleaner Cloths.
American Felt Co.

Cling Surface.
Cling-Surface Co.

Clocks.
Pettes & Randall Co.
Watchman's Clock & Supply Co.

Cloth Boards.
Chaffee Bros.
Pearson, J. T.
Richardson Brothers.
Textile-Finishing Machinery Co.

Cloth Cutting Machines.
Eastman Machine Co.
Firth, William, Co.
Oswego Machine Works.

Cloth Dryers.
——See Drying Machinery.

Cloth Expanders.
American Finishing Machinery Co.
Arlington Mch. Wks.
Birch Bros. Somerville Machine Wks. (Albert Birch, prop.).
Leyland, Thomas, & Co.
Lockwood Manufacturing Co., The.
Somerville Mach. Wks. (Albert Birch, prop.).

Cloth Shrinking Machinery.
Reliance Machine Works.

Cloth Testers.
Firth, William, Co.
Perkins, B. F., & Son, Inc.
Shuttle Machine Co.
Suter, Alfred.

Alphabetical Index to Advertisers, with page numbers, follows this list.

Cloth Winders.
American Finishing Machinery Co.
Firsching, J. A.
Parks & Woolson Machine Co.

Clutches.
American Tool & Machine Co.
Dodge Mfg. Co.
Hunter, James, Machine Co.

Coal Analysis.
Emerson Laboratory.
Little, A. D., Inc.

Cold Sawing Machine.
Burr & Son, John T.

Combs (Wool and Cotton).
Crompton & Knowles Loom Works.
Firth, William, Co.
Hood, R. H., Company.
Leigh & Butler.
Richards, Atkinson & Haserick.
Riley, C. E., Company.

Commercial Vehicles.
Kissel Motor Car Co.

Compressors (Air).
Allis-Chalmers Mfg. Co.

Condensers.
Allis-Chalmers Mfg. Co.
Dean Bros. Steam Pump Works.

Cones (Paper).
American Textile Specialty Mchy. Co.
Fairpoint Corporation.

Conditioning and Testing.
U. S. Conditioning & Testing Co.

Conveying Systems.
Dodge Mfg. Co.
Sturtevant, B. F., Co.

Coolers (Air).
Power Specialty Co.

Cop Machinery.
Eppler, John, Mach. Works.

Cop Tubes.
American Textile Specialty Mchy. Co.
Fairpoint Corporation.
—See Paper Tubes.

Copper Expansion Joints.
Badger, E. B., & Sons Co.

Copper Print Rollers.
Taunton-New Bedford Copper Co.

Coppersmiths.
Badger, E. B., & Sons Co.
Textile-Finishing Machinery Co.

Copper Work for Dyers.
Badger, E. B., & Sons Co.
Butterworth, H. W., & Sons Co.
Textile-Finishing Machinery Co.

Corduroy and Velvet Cutting Machines.
Firth, William, Co.

Corrugated Iron and Steel.
Scaife, W. B., & Sons.

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Schwartz, L. H. A., & Co.

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Ashworth Bros.
Barber-Colman Co.
Brown Spin-Wright Cotton Co.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Cramer, Stuart W.
Crompton & Knowles Loom Works.
Curtis & Marble Machine Co.
Dixon Lubricating Saddle Co.
Draper Company.
Easton-Burnham Co.
Elliot & Hall.
Entwistle, T. C., Co.
Fales & Jenks Mch. Co.
Firth, William.
H. & B. American Machine Co.
Klauder-Weldon Dyeing Machine Co.
Leigh & Butler.
Mason Machine Works.
Metallic Drawing Roll Co., The.
Parks & Woolson Machine Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Potter & Johnston Mch. Co.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Saco-Lowell Shops.
Schwartz, L. H. A., & Co.
Smith & Furbush Machine Co.
Stafford Co., The.
Textile-Finishing Machinery Co.
Textile Machinery Co.
Whitin Machine Works.
Wildman Mfg. Co.
Woonsocket Machine & Press Co.

Cotton Openers and Lappers.
Firth, William, Co.
H. & B. American Machine Co.
Leigh & Butler.
Potter & Johnston Mch. Co.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
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Cotton Softeners.
Bosson & Lane.
Harding & Fancourt, Inc.
Marston, John P.
Seydel Mfg. Co., The.

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Firth, William, Co.
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Counting Machines.
Beck, Chas., Co.
Durant Co., W. N.
Root, C. J., & Co.

Couplings (Flexible-Insulated).
Bond Co., Charles.

Crayons.
American Crayon Co.
Dixon, Jos., Crucible Co.
Lowell Crayon Co.

Cutting Machines.
Artos Engineering Co.
Beck, Chas., Co.
Eastman Machine Co.
Firsching, J. A.
Gawego Machine Works.
Perkins, B. F., & Son, Inc.

Cylinder Oil (Superheated Steam).
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Disinfectants.
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Dobbies.
Crompton & Knowles Loom Works.
Stafford Co., The.

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Hood, R. H., Company.
H. & B. American Machine Co.
Metallic Drawing Roll Co., The.

Drying Boards.
Pearson, J. T
Philadelphia Drying Mchy. Co.

Drying Machinery.
American Tool & Machine Co.
Arlington Mch. Wks.
Bailey, Frank.
Birch, Albert, Somerville Mach. Wks.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Cell Drier Machine Co.
Hunter, Jas., Machine Co.
Kenyon, D. R., & Son.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sargent's, C. G., Sons.
Schwartz, L. H. A., & Co.
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Dusters.
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Dust Collectors.
Firth, Wm.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

Dyers, Bleachers and Finishers.
Aberfoyle Mfg. Co.
Brophy's, T., Sons.
Davidson, John F.
Globe Dye Works Co.
Home Bleach & Dye Works.
Hopkinson Dyeing & Textile Works.
Lorimer's, The Wm. H., & Sons Co.
National Silk Dyeing Co.
Peerless Co.
Utica Willowvale Bleaching Co.

Dyeing, Drying, Bleaching and Finishing Machinery.
American Finishing Machinery Co.
American Tool & Machine Co.
Arlington Mch. Wks.
Autoforce Ventilating System.
Birch, Albert, Somerville Mach. Wks.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Cell Drier Machine Co.
Curtis & Marble Machine Co.
Entwistle, T. C., Co.
Giles, J. H., Dyeing Machine Co.
Heathcote, John, & Son.
Hunt, Rodney, Mach. Co.
Hunter, James, Machine Co.
Hussong Dyeing Machine Co.
Kenyon, D. R., & Son.
Klauder-Weldon Dyeing Machine Co.
Klipstein, A., & Co.
Leigh & Butler.
Leyland, Thos., & Co.
Lockwood Manufacturing Co., The.
National Laundry Machinery Co.
Parks & Woolson Machine Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Pearski Dyeing Machine Co.
Reliance Machine Works.
Schwartz, L. H. A., & Co.
Smith, Drum & Co.
Somerville Mach. Wks. (Albert Birch, prop.).
Sturtevant, B. F., Co. (Drying).
Sucker, G.
Suter, Alfred.
Textile-Finishing Machinery Co.
Tolhurst Machine Works.
U. S. Hoffman Co.

Dye House Cans.
Hill, James, Mfg. Co.

Dye House Trucks.
Bailey, Frank.

Dye Kettles.
Stearns, A. T., Lumber Co.

Dye Sticks.
Bailey, Frank.
Klauder-Weldon Dyeing Machine Co.

Dye Tubs.
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Dyestuffs and Chemicals.
American Dyewood Co.
Atteaux, F. E., & Co.
Badische Co.
Bayer Co., The, Inc.
Berlin Aniline Works.
Bischoff & Co.
Bosson & Lane.
Cassella Color Co.
Electro Bleaching Gas Co.
Farbwerke-Hoechst Co.
Harding & Fancourt, Inc.
Innis Speiden & Co.
Kalle Color & Chemical Co., Inc.
Ford, J. B., Co.
Geisenheimer & Co.
Holliday Read & Sons, Ltd.
Johnson, Chas. A., & Co.
Klipstein, A., & Co.
Leyland, Thos., & Co.
Marston, John P.
Roessler & Hasslacher Chemical Co.
Seydel Mfg. Co.
Stein, Hirsh & Co.
Sykes, Walter F., & Co.
Thayer, Ed M., & Co.
Wing & Evans, Inc.
Wolf, Jacques & Co.
Worden Chemical Co.

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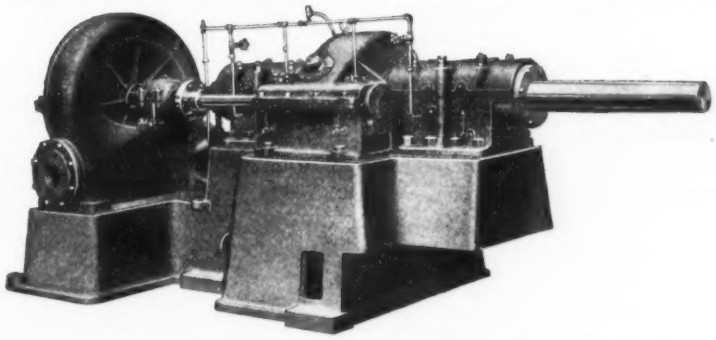
Edgings.
—See Tapes, Braids and Edgings.

Alphabetical Index to Advertisers, with page numbers, follows this list.

Sturtevant
(REG. U. S. PAT. OFF.)

High Efficiency Geared Turbine



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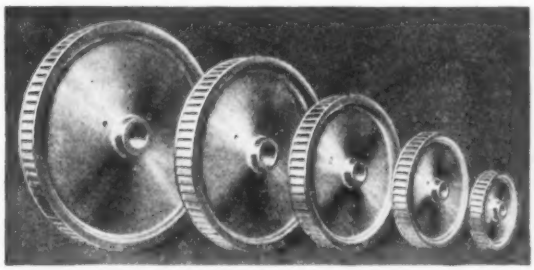

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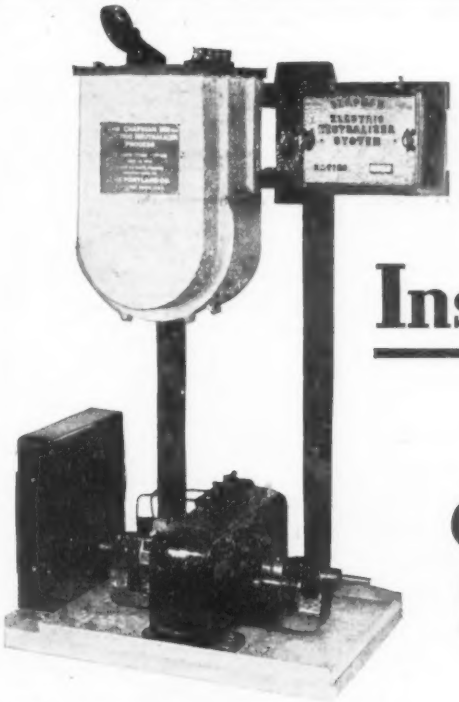

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Publisher's Page

Change of Address

Subscribers are requested to notify us in writing before the 5th of the month of any change of address desired, as that is the date on which our mailing lists close for the current month. If we do not receive notice of the change until after the 5th, that month's issue will go to the old address and may require postage for reforwarding.

It sometimes happens that because a news item has been published to the effect that he has moved from one mill to another, a subscriber thinks that his address will be changed automatically without any instructions from him and he will sometimes write to the effect that we knew he had moved because we had published an item about it and he does not see why his magazine was not sent to his new address. He forgets that the subscription department is entirely separate from the news department and has 6,000 names to look after and can hardly be expected to search the news columns for possible changes of address, and even if it did, it would not be proper to make changes unless ordered or authorized by the subscriber.

Please, therefore, be considerate, for your own sake as well as ours, and advise us promptly and definitely when changing your address. It helps us very much if your old address is given, as well as your new address stated clearly.

"Advertising Sells My Goods"

"You'll notice that the goods which are advertised longest, heaviest and put up most attractively are generally the best sellers. Speaking from the view-point of a large producer, I can say that advertising is the force which sells my goods and I know it to be the cheapest salesman I can employ. I also know that a great number of the large producers of today consider advertising the cheapest salesman they can employ."—A National Advertiser in Printers' Ink.

A Textile Necessity

Lord & Nagle Co., Boston, Mass.

Gentlemen: I find I cannot get along without the Textile World Record—to keep up to date I must have it. It is surely the great medium for keeping thoroughly posted on all points pertaining to textiles in this country. I enclose $3.00 for subscription with Directory.

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Philadelphia Felt Co., Philadelphia, Pa.

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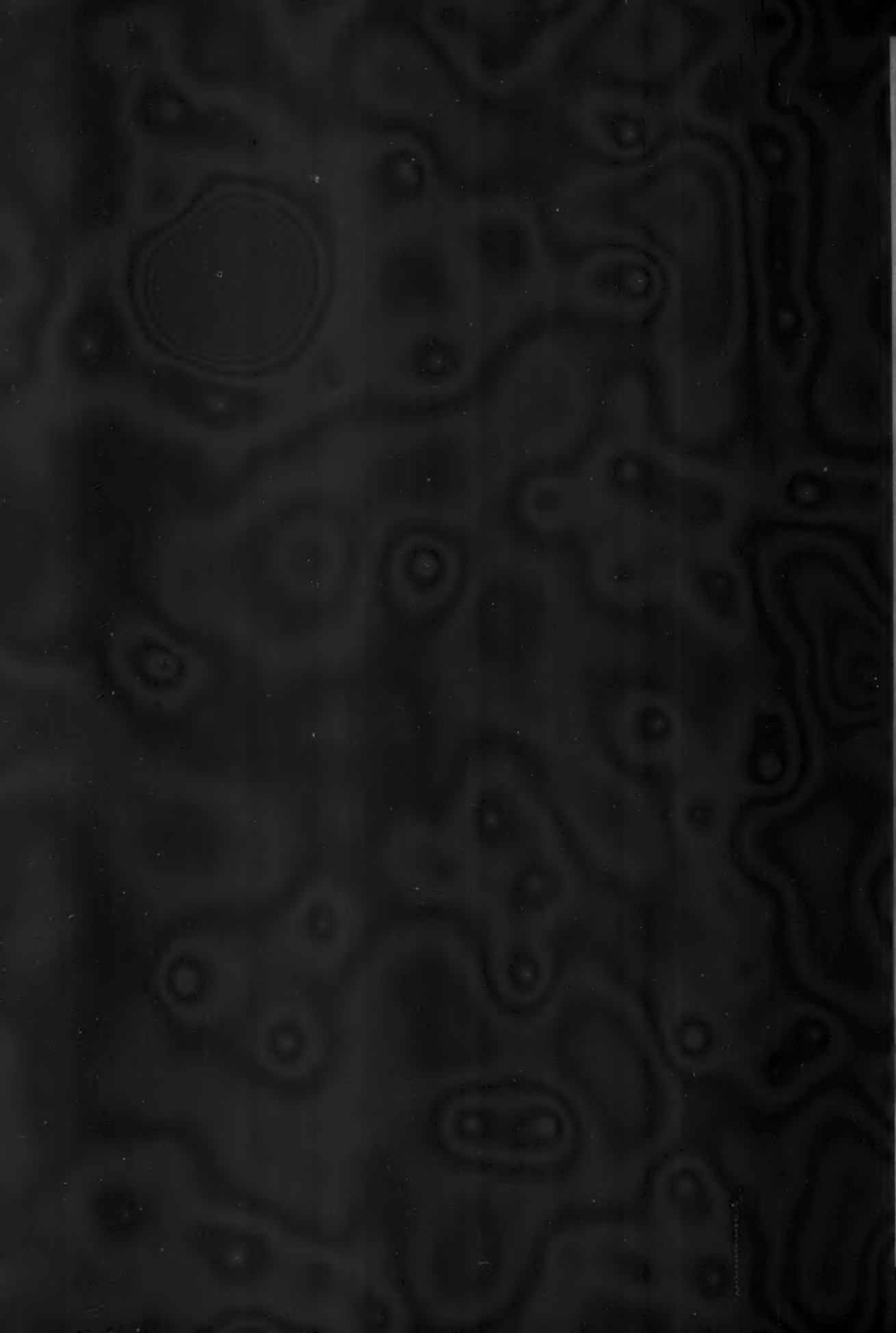
Read the News

Gradually, advertising has come to be recognized for what it is—business news, valuable and permanently effective in direct proportion to its dependability.—Charles Austin Bates.

Monthly Circulation Statement

Of this edition 6,350 copies are printed and all are needed.



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American Felt Company

TRADE MARK

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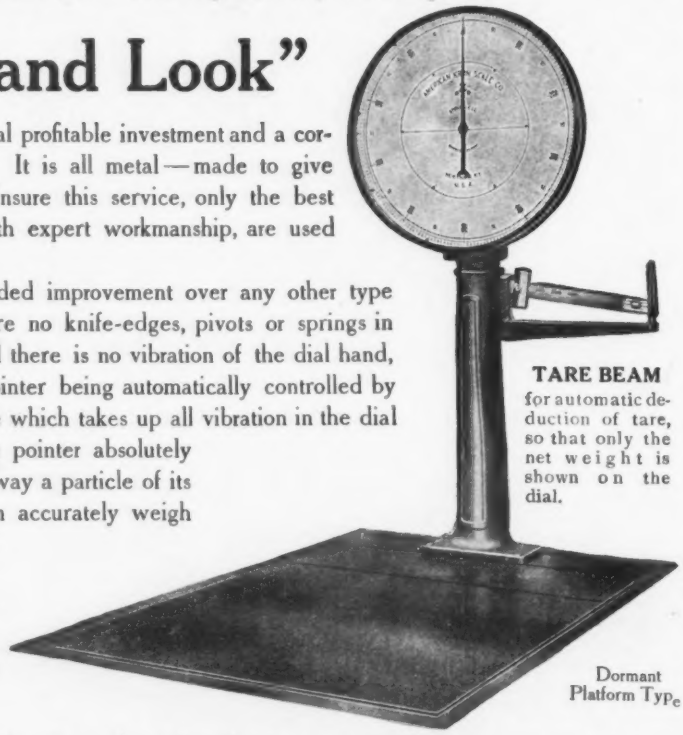
"Load and Look"

The Kron Scale is a real profitable investment and a correct weight insurance. It is all metal—made to give **lasting service.** To insure this service, only the best materials, combined with expert workmanship, are used in its construction.

The Kron is a decided improvement over any other type of scale, in that there are no knife-edges, pivots or springs in the dial mechanism, and there is no vibration of the dial hand, the movement of the pointer being automatically controlled by a compressed air device which takes up all vibration in the dial mechanism, making the pointer absolutely steady without taking away a particle of its sensitiveness. You can accurately weigh a 15-lb. package or 1000-lb. shipment—one right after the other—as rapidly as you can load and unload the scale.



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The Kron Scale is made in various types and capacities, either dormant or portable, to meet every requirement. A convincing proof of value is the list of leaders in various lines of business who are now using this efficient weighing method.

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American Kron Scale Company

39 Cortlandt Street, New York

Western Representative: SPENCER OTIS COMPANY, Railway Exchange Building, Chicago, Ill.

THE TEXTILE IMPORTING COMPANY

H. G. McKerrow of this city and Bernard Holmes, formerly of Manchester, England, have established the Textile Importing Co. with offices at 176 Federal St., Boston. Mr. McKerrow is well known to the textile trade in this country, and Mr. Holmes has long been engaged in the English textile trade, having been a member of the Manchester Royal Exchange for eighteen years. The specialties of this company are to include the importation of textile machinery, cotton cloth and yarn, specializing in fine counts. They are the agents for the Tweedales and Smalley cotton machinery, the twisting machinery built by J. & T. Boyd & Co., and a lithographic process of printing textiles which is in successful use in England. The Textile Importing Co. will be pleased to receive inquiries to which they will give their prompt attention.

MILL NEWS

Albert T. Johnson, for a number of years overseer of the finishing department at the Sawyer Woolen Mills, American Woolen Co., Dover, N. H., died suddenly while at work January 27. Mr. Johnson was born in Pomfret, Conn., fifty-five years ago. His wife, one daughter and two brothers survive him.

E. P. Dickinson has accepted the position of overseer of dyeing and finishing for Charles W. House & Son, Unionville, Conn.

George H. Booth, agent of the Versailles Sanitary Fibre Mills, Versailles, Conn., has severed his connection with that company. He is succeeded by T. A. Lacey, formerly of Peterboro, N. H.

B. E. Connell has accepted the position of overseer of weaving at the Yantic Woolen Co., Yantic, Conn. He comes from the Faulkner, Manufacturing Co., North Billerica, Mass.

P. Riley, overseer of dyeing at the Fairbanks & Dorr Mill, Guild, N. H., has severed his connection with that company.

Bernard E. French has accepted the position of designer at the Alta Vista Cotton Mill, Alta Vista, Va. He comes from El Cercado, N. L., Mexico.

William E. Rowlandson has accepted the position of overseer of dyeing at the Holden, Leonard & Co.'s Mill, Bennington, Vt. He was formerly employed at the Bay State Mill, Lowell, Mass., and succeeds E. Thornton.

Fred Gutheric has accepted the position of overseer of carding at the Baltic Mills, American Woolen Co., Enfield, N. H. He comes from Winooski, Vt., and succeeds P. H. Manning.

Canada, New Brunswick, Golden Grove. J. W. Willis, a small woolen manufacturer, has installed several stocking knitting machines in his woolen mill, operated under the name of the New Brunswick Woolen Mill.

Canada, Ontario, Almonte. A new boiler is being installed in the local plant of Penmans, Limited. The plant is shut down while this change and many other improvements are in progress.

*Canada, Ontario, Alton. Machinery formerly operated by the old Waterloo Knitting Company at Carlton Place has been purchased by William Algie, proprietor of the Beaver Mills, and is being installed in the addition to the Beaver Mills which has been under construction for several months. This equipment includes knitting, winding and finishing machinery.

*Georgia, Savannah. With the installation of the machinery formerly operated at Columbia, S C., in the Savannah plant of G. H. Tilton & Son, the local plant now has 400 knitting machines making children's cotton hosiery. It is expected a further increase will be made within a year.

Illinois, Belleville. Extensive changes and improvements have been made in the past few months by the St. Clair Hosiery Mills. The capital stock has been increased to $25,000, and 30 knitting machines have been added. They are now making pure silk, artificial silk and mercerized cotton half hose, buying 7 and 8 Japan thread silk, 150 denier artificial silk and 40/2, 50/2, 60/2, 70/2, 100/2, 60/1 and 70/1 mercerized.

*Illinois, Chicago. A new and larger plant is being built for the Child's Welfare Garment Company at 3312-20 W. Ravenswood Ave. The present location is 2445 Lincoln Ave. The new knitting mill will be a 3-story structure when completed, covering a ground area, 75 by 113 feet, and it is expected the first story will be finished about February 1. The building will be of brick and heavy mill construction, thoroughly modern in facilities and equipment. The first story will be occupied as soon as it is ready and the rest of the structure will be finished later. The products of this concern are infants' shirts and underwear specialties. The officers are: A. W. Kindt, president; R. A. Hoefer, vice-president and manager; and Charles B. Kindt, secretary-treasurer.

Illinois, Chicago. The Shaker Knitting Mills Co., corner of Franklin and Huron Sts., are adding new machinery for making jerseys and bathing suits. This is a new concern established about a year ago to manufacture sweaters and fancy knit goods. D. C. O'Shea is president and buyer; J. M. Feldhake, treasurer; and A. Hezinger, superintendent.

Illinois, Chicago. It is planned to add new machinery from time to time during the year to the plant of the Lorenz Knit Goods Mfg. Company, manufacturers of sweaters, fancy knit goods and underwear.

Massachusetts, Boston. William H. Williams, superintendent of the knitting department of the Peerless Knitting Mills Company, Mattapan, has purchased an interest in the Somerset Knitting Co., 94 Essex St. The plant will be moved to Hyde Park and equipment will be installed to manufacture underwear and union suits similar to some of the lines manufactured by the Peerless Mills.

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4-10

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Position as Superintendent of Cotton Mills

doing cotton dyeing, finishing and bleaching; or would consider position of Superintendent of Dyeing. Thoroughly experienced in all classes of cotton piece goods, plain and fancy sateens, ratine and crepe and silk and cotton, 15 years experience; A 1 reference as to character and ability; thoroughly understands latest methods as to cost and systematizing and with thorough executive ability. Address "A. B." care Textile World Record, Boston, Mass.

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Your chance to get in on some New Hosiery Machines at right prices. Brinton Ribbers, Koehler Loopers, Jenckes and Hemphill Machines, Oswald Spindle Winder and Merrow Transmitter.

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Man with practical experience and technical training in both the manufacturing and accounting departments of the textile industry, at present employed, desires to change. Familiar with fancy cottons, worsted dress goods, and men's wear fabrics. Would like to get in touch with a high grade firm in need of a cost keeper, or would consider a position as superintendent. For interview, address "Cost Keeper," care Textile World Record, Boston, Mass.

Wanted

Machinery Salesman

One thoroughly familiar with knit goods and hosiery trade. Must be experienced. Address "A-1," Textile World Record, Boston, Mass.

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Position wanted by Bradford, England, ex-manufacturer of Plain and Fancy Worsted Coatings, Dress Goods and Coat Sleeve Linings. Thorough practical man, accustomed to all kinds of Drafting. High references. States or Canada. Address, "Bradford," care of Textile World Record, Boston, Mass.

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Therefore, if you have any textile machinery, mill or power-plant equipment that you do not intend to use again, the Textile World Record offers you the best market for its disposal at a fair price. An advertisement this size costs only $16.00 an issue. For further information address:

Classified Advertising Department

Textile World Record 144 Congress Street Boston, Mass.

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6099, Textile World Record, Boston, Mass.

Superintendent or manager of knitting mill; has worked on all kinds of underwear and some sweaters; familiar with all makes of knitting machinery; 44 years of age; good reference.
3844, Textile World Record, Boston, Mass.

Superintendent of small cotton mill, or overseer of weaving; has worked on cotton blankets, shawls, towels, napkins, handkerchiefs, ginghams, lenos, drills, shirtings, straw matting, lappetts, fancies and plain cloths; familiar with all makes of machinery; 38 years of age, married; good reference.
6104, Textile World Record, Boston, Mass.

Finished Percher in woolen mill, cloth examiner, or would accept position as shipping clerk; has worked on all classes of goods; 28 years of age; good reference.
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Overseer of Cotton Carding; has worked on carded and fine combed goods, all kinds of cotton; familiar with Howard & Bullough and Lowell pickers; Whitin, Asa Lees, Howard & Bullough, cards; Whitin, Dobson & Barlow, Hetherington and Nasmith combers; Whitin, and Howard & Bullough drawing frames; Providence, Howard & Bullough and Woonsocket speeders; 29 years of age, married; will not go to Pa., N. Y., N. J., West, South or to Canada; good reference.
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Overseer of Carding, carding and spinning or superintendent of small cotton mill; has worked on most all kinds of white cotton; familiar with all kinds of machinery; prefers South, but will go anywhere for a good position; 50 years of age, married; good reference.
6107, Textile World Record, Boston, Mass.

Overseer of Spinning in woolen mill; has worked on shoddy and all classes of woolen goods; familiar with Davis & Furber, John Fairem and Johnson & Bassett mules; 30 years of age, married; will not go to R. I., Conn., Me., N. H., Vt., Pa., West, South or Canada; good reference.
6108, Textile World Record, Boston, Mass.

Overseer of Finishing in small woolen mill; would consider good position as second hand or overseer of wet finishing; has worked on fine woolen and worsted piece dyes, plaid backs, chinchillas and astrachans; familiar with Parks & Woolson double shears, Davis & Furber chinchilla machines and Hunter and Rodney Hunt mills; 42 years of age, married; will not go to Me., N. H., Vt., Pa., N. Y., N. J., West, South or to Canada; good reference.
6109, Textile World Record, Boston, Mass.

Assistant Superintendent in woolen mill; has worked on practically all kinds of goods; 26 years of age; good reference.
6110, Textile World Record, Boston, Mass.

Fixer in Knitting Mill; has worked on sweaters; familiar with the Leighton, Stafford & Holt, Dubied, Grosser and some experience on sewing machines; 22 years of age; will not go to N. Y., West, South or the Western part of Canada; good reference.
6111, Textile World Record, Boston, Mass.

Overseer or second hand of burling and sewing in woolen mill; has worked on woolen and worsted goods; 29 years of age, married; good reference.
6112, Textile World Record, Boston, Mass.

Overseer of Spinning in woolen mill; has worked on all kinds of yarn; familiar with all makes of mules; 35 years of age, married; will not go South; good reference.
6113, Textile World Record, Boston, Mass.

Position Wanted by a Bradford, Eng., experienced manufacturer of plain and fancy worsted coatings, dress goods, coat and sleeve linings would consider a position as either superintendent or designer; thoroughly practical expert in drafting, etc.; 50 years of age, married; highest references.
6114, Textile World Record, Boston, Mass.

Superintendent of cotton mill; has worked on cotton yarns, sheetings, twills and shirtings; familiar with Whitin, Franklin, Mason and Fales & Jenks machines; 50 years of age, married; will not go to Pa., West, South or to Canada; good reference.
6115, Textile World Record, Boston, Mass.

Overseer of Weaving in woolen mill; would consider position as loom fixer also; has worked on cassimeres, cotton worsted suitings, men's wear woolens, overcoatings, prison and camp blankets, etc.; familiar with the Crompton & Knowles and Crompton & Thayer looms; 28 years of age; good reference.
6116, Textile World Record, Boston, Mass.

Overseer of Dressing in woolen mill, second hand or would consider position of boss spooler or boss winder; has worked on woolens, worsteds, cheviots, blankets, cloakings, in fact most all kinds of fabrics, both wet and dry; familiar with Davis & Furber, Cleveland, Whitely, Johnson & Bassett winders and all makes of dressing department machinery; 40 years of age, married; will not go to Me., Vt., Canada, but prefers R. I. or Mass.; good reference.
6117, Textile World Record, Boston, Mass.

Second Hand of Knitting; has worked on all kinds of women's and children's underwear; 20 years of age; familiar with latch needle machines; good reference.
6118, Textile World Record, Boston, Mass.

Overseer of Weaving in woolen mill; has worked on all kinds of plain and fancy woolens, including cassimeres, dress goods, steamer rugs, cloakings and chinchillas; familiar with Knowles looms; 41 years of age, married; will not go to Pa., N. Y., N. J., West, South or to Canada; good reference.
6119, Textile World Record, Boston, Mass.

Superintendent of cotton mill; has worked on all kinds of cottons, fine and coarse, also hosiery yarns; familiar with nearly all makes of machinery in use at the present time; 48 years of age, married; will not go to Miss., Ala., or Georgia; good reference.
6120, Textile World Record, Boston, Mass.

Designer, overseer of weaving or dressing in woolen mill; has worked on woolens and worsteds; will not go West, South or to Canada; 26 years of age, married; good reference.
6121, Textile World Record, Boston, Mass.

Designer, assistant designer in woolen mill; has worked on men's wear, wool and worsted and overcoatings; familiar with Knowles looms; will not go to Pa., West, South or to Canada; 26 years of age, married; good reference.
6122, Textile World Record, Boston, Mass.

Overseer of Knitting; has worked on ladies' fine jersey ribbed underwear, also misses' and children's, tuck stitch or plain 1 and 1 ribbed, cotton, woolen or silk plaiting; familiar with Nye & Tredick, Scott & Williams, Wildman, Stafford & Holt, etc., machines, also the Payne & Foster winders; 26 years of age, married; good reference.
6124, Textile World Record, Boston, Mass.

Assistant Superintendent or assistant manager in woolen mill; would consider good office position; has worked on kerseys, overcoatings, ladies' cloakings, etc.; 24 years of age; good reference.
6125, Textile World Record, Boston, Mass.

Superintendent of an underwear or hosiery mill; would consider position of boss finisher or mill bookkeeper; has worked on men's, ladies' and children's two piece unions, sweaters, sleeping garments and hosiery in flat and ribbed from wool, worsted and cotton; familiar with all makes of carding, spinning and knitting machinery; 44 years of age; will not go to N. Y. or to Canada; good reference.
6123, Textile World Record, Boston, Mass.

Overseer of Cloth Room in cotton mill; has worked on sateens, both warp and filling, lawns, sheetings, shirtings, prints and a great variety of converted goods of all widths, weights and constructions, both combed and carded; familiar with hydraulic and screw presses, Curtis & Marble and Elliot & Hall folders, also Curtis & Marble and Lowell shears; 41 years of age, married; will not go to Vt., Pa., N. Y., N. J., West, South or to Canada; good reference.
6085, Textile World Record, Boston, Mass.

Assistant Superintendent or shipping clerk in woolen mill; has worked on kerseys, meltons, broadcloths, venetians and carriage linings; familiar with all makes of machinery used in making above class of goods; has worked in all departments of a woolen mill; 26 years of age; will not go to Pa., N. Y., N. J., West, South or Canada; good reference.
6086, Textile World Record, Boston, Mass.

Overseer of Weaving in woolen mill; has worked on fancy woolens and worsteds; prefers Knowles looms; 45 years of age, married; will go to Mass., R. I., and Conn.; has one boy in finishing room; good reference.
6087, Textile World Record, Boston, Mass.

Overseer of worsted scouring, carding or combing; has worked on all classes of wool, foreign and domestic; familiar with James Smith, Textile Machinery Co., Platt, Taylor & Wadsworth cards; Crompton & Knowles, Smith & Sons, Noble, Taylor & Wadsworth combs, also James Hunter scouring machines; 27 years of age, married; will not go to Me., South or Canada; good reference.
6088, Textile World Record, Boston, Mass.

Superintendent in Bleachery, or overseer of bleaching; has worked on cotton piece goods, skein yarn, hosiery and Turkish toweling; familiar with all makes of bleaching machinery; 30 years of age, married; will not go to Canada; good reference.
6089, Textile World Record, Boston, Mass.

Weave Room Office Bookkeeper; has worked on half woolen and fine all wool dress goods and broadcloths; familiar with German looms; 21 years of age; good reference.
6090, Textile World Record, Boston, Mass.

Overseer of Finishing in woolen mill; has worked on all grades of woolens, worsteds and face finished goods; familiar with English, German and American machines; 30 years of age, married; will not go South or to Canada; good reference.
6091, Textile World Record, Boston, Mass.

Overseer of Cloth Room in cotton mill; has worked on coarse and fine goods from 28s warp and 80s warp; 10s to 120s filling, also silk filled goods; familiar with all kinds of cloth room machinery; 40 years of age, married; will not go West, South or to Canada; good reference.
6092, Textile World Record, Boston, Mass.

Overseer of Knitting or sewing machine adjuster; has worked on full fashioned **sweaters,** also cut goods; familiar with all flat beds, Stafford & Holt, and Leighton circular knitting machines; Union Special, Metropolitan, Merrow, Singer, Reece button-hole, Union button and National button sewing machines; 26 years of age, married; good reference.
6097, Textile World Record, Boston, Mass.

Superintendent or assistant of woolen or worsted mill; has worked on woolens, worsteds, silks and cotton worsteds; familiar with American and English machinery; will not go West, South or to Canada; 41 years of age, married; good reference.
6093, Textile World Record, Boston, Mass.

Loom Fixer or overseer of weaving in woolen mill; has worked on woolen dress goods, broadcloths, flannels, and fancy cassimeres; familiar with Knowles looms; 50 years of age, married; will not go to Pa., N. Y., N. J., West, South or Canada; good reference.
6096, Textile World Record, Boston, Mass.

Overseer of Woolen Carding; has worked on all classes of goods and yarns; 29 years of experience as a woolen carder; 48 years of age, married; good reference.
6095, Textile World Record, Boston, Mass.

Assistant Manager or manager in sample department in woolen mill; would also accept position of overseer of weaving; graduate of textile school in Germany; employed for nine years in leading German factories as producer of new qualities and exclusive sample collections of most varied materials in ladies' and men's novelties; 32 years of age; married; German; good reference.
6098, Textile World Record, Boston, Mass.

First Class Loom Fixer, or overseer of weaving in small woolen mill; has worked on fancy woolens and worsteds; familiar with Knowles looms; 26 years of age; will not go to Me. or South; R. I. preferred; good reference.
6100, Textile World Record, Boston, Mass.

Overseer of Carding in woolen mill or second hand; has worked on all kinds of woolen goods; familiar with Davis & Furber, Furbush, and Taintor cards; 48 years of age, married; will not go West, South or to Canada; good reference.
6101, Textile World Record, Boston, Mass.

Superintendent of Hosiery Mill; has worked on all grades of seamless hosiery, wool, worsted, cotton and silk; expert in handling fiber silk; familiar with all makes of machinery; is a designer of machinery; has invented methods and machines for making goods; 37 years of age, married; good reference.
6102, Textile World Record, Boston, Mass.

Overseer of Finishing in knitting mill or superintendent of small mill; has worked on men's and children's union suits, shirts and drawers in cotton, mercerized, lisle, worsted, silk and all wool; familiar with Reece, Singer, button hole, Union button, triple interlock, Union Special, in fact all kinds of sewing machines, electric motors, washing and drying machinery; 42 years of age, married; good reference.
6103, Textile World Record, Boston, Mass.

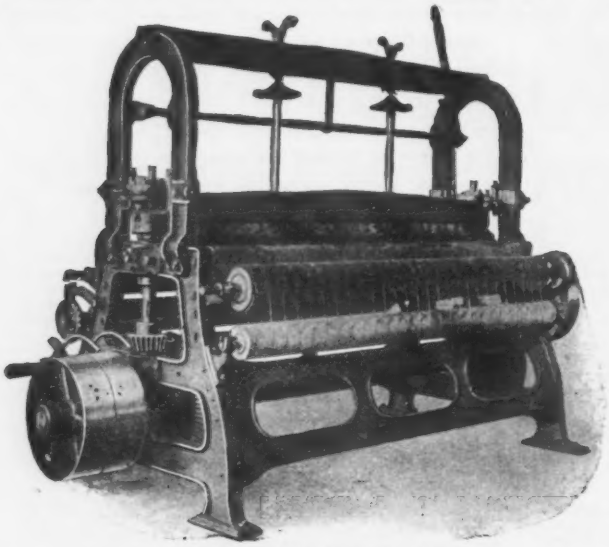
Second Hand in woolen card room; has worked on flannels, dress goods, broadcloths and fancy woolens; familiar with Barker and Davis & Furber cards; 22 years of age; good reference; prefers Me. or Mass.
6001, Textile World Record, Boston, Mass.

Chemist or would consider position in bleachery; has had experience with soaps, oils and mill materials; familiar with all classes of dyestuffs, etc.; has worked on all kinds of machinery connected with bleaching and finishing of cotton piece goods; 25 years of age; good reference.
6002, Textile World Record, Boston, Mass.

Assistant Designer in woolen mill, or assistant superintendent in small mill; has worked on cassimeres, whip cords, coverts, overcoatings, plaid backs, etc.; familiar with Knowles looms; 20 years of age; will not go West, South or to Canada; good reference.
6014, Textile World Record, Boston, Mass.

Overseer of spinning, winding, twisting, warping or spooling in cotton mill, assistant superintendent or manager; has worked on all kinds of cotton, linen and silk goods, also thread; familiar with all makes of spinning, twisting, winding, warping and spooling machinery; 40 years of age, married; will not go to Mass.; prefers good Southern mill; good reference.
6016, Textile World Record, Boston, Mass.

CHINCHILLA MACHINE



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Tentering and Drying Machines, Crabbing Machines, Cloth Washers, Whipping Machines, Etc.

For producing
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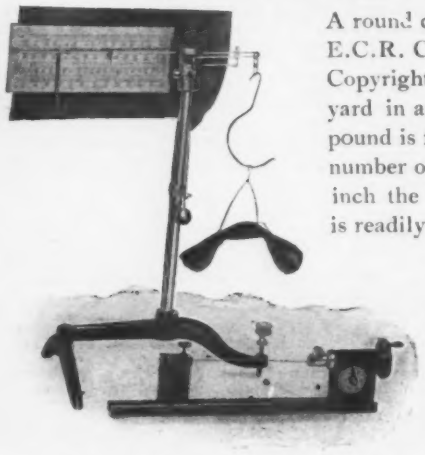
ALFRED SUTER, TEXTILE ENGINEER

200 Fifth Avenue, New York

Universal Cloth and Yarn Analyzing Set



Universal Yarn Balance and Pocket Twist Tester

A round cut of 1/400 part of a square yard is made on the E.C.R. Cutter and by means of the Balance and SUTER'S Copyrighted Tables the weight of the cloth in ounces per yard in any width or the yardage per pound is found at once. Knowing the number of picks and warp threads per inch the "Average number of yarn" is readily obtained.

The yarn numbers of linen, woolen, worsted, cotton and silk yarns are obtained on the Universal Balance and the number of twists per inch in the yarn are given by the Pocket Twist Tester.

E. C. R. Cutter

MILL NEWS

New York, New York City. The Crescent Company has moved from 569 Broadway to 49 E. 21st St. Sweaters, bathing suits and other goods are manufactured.

New York, Troy. It is announced that the Roff Underwear Company will continue the Green Island Knitting Mill although it was planned to discontinue this plant and remove the business to the mill at Cohoes soon after the first of the year. The change is said to be due to the recent fire in Cohoes.

New York, Troy. Peter McCarthy, treasurer of the Troy Knitting Company, states that results with the lines which the concern has been manufacturing have not been satisfactory and that they are going to change the character of the goods to some line that the mill is adapted for, not fleece or ribs. At the annual meeting January 20 the matter will be taken up.

New York, Utica. It has been known for some time that the Frisbie & Stansfield Knitting Company has been embarrassed financially but efforts to secure a statement from the concern have brought replies that they were not ready to make any announcement. A reorganization plan will shortly be carried out. Stockholders have received a letter from Spencer Trask & Company, New York bankers, who in 1910 floated $1,000,000 of the company's preferred stock, which states that additional capital must be provided and proposing that the preferred stockholders purchase $500,000 of bonds to be issued by a realty concern to be formed to take over some of the subsidiary companies. It is stated that the difficulties have been occasioned chiefly by mismanagement of finances and loans improperly made to officers and affiliated companies, resulting in a serious impairment of working capital.

North Carolina, High Point. Manufacturers of machinery for weaving towels and for hosiery knitting are invited to send printed matter illustrating their machinery, with prices, etc., to Post Office Box 107, High Point.

*North Carolina, Raleigh. It is understood that Hugh Lynn & Bro., who were previously reported establishing a knitting mill in Raleigh, have not determined details of their projected plant. They have begun the construction of a dam to furnish power for the proposed knitting mill.

Ohio, Bowling Green. F. E. Whitker, receiver for the Monarch Underwear Company, is running the plant full time and operating the knitting room all night. The plant makes men's ribbed union suits.

Pennsylvania, Bethlehem. The Philadelphia Hosiery Company has resumed manufacturing, various improvements throughout the plant having been completed.

Pennsylvania, Chester. According to report the mill owned by Murphy & Bro., 13th and Fitzwater Sts., Philadelphia, has been leased to a company which is being formed to manufacture artificial silk.

Pennsylvania, Conshohocken. The Lee Tire & Rubber Co., who are also engaged in the manufacture of surgical hosiery, are reported as contemplating extensive improvements and additions to their present plant at Spring Mill, on the outskirts of this town.

Pennsylvania, Philadelphia. The Brentmoor Knitting Mills, Van Kirk and Erdrich Sts., Wissinoming, with J. Hecht as superintendent, are manufacturing a line of full fashioned knitted novelties in silk, consisting of neckties, mufflers and hosiery, with 138 full fashioned heads. The plant is operated by gas power and the production is sold through New York.

Pennsylvania, Philadelphia. The Concordia Silk Hosiery Co., Fisher's Lane and Wyoming Ave., near Frankford, with a capital of $50,000, George Wucherer, president, superintendent and buyer; and Frank Schenuit, treasurer, are operating 22 full fashioned frames on ingrain silk hosiery which they sell direct. They are very busy.

Pennsylvania, Philadelphia. The Royal-Ascot Knitting Mills Co., 234-38 Ashmead St., Germantown, which succeeded the Royal Knitting Mills, formerly at 1427 Catharine St., and the Evans & Stonely Mfg. Co., Germantown, have a capital of $100,000; B. Robbins, president, treasurer and buyer; William R. Evans, vice-president and superintendent, and M. Levin, secretary. They are manufacturing cardigans, sweaters, golf vests, bathing suits and knitted neckwear, which they sell direct and through their New York offices, 1161-75 Broadway.

Pennsylvania, Philadelphia. Oliver Jarvis, having associated with a Mr. Fite as a partner, is now operating his plant at 5120 Wakefield St., Germantown, under the name of the Germantown Knitting Mills, Jarvis & Fite, proprietors. They are operating 10 knitters and 10 sewing machines on cardigan jackets, caps, bathing suits, etc., and selling the production direct.

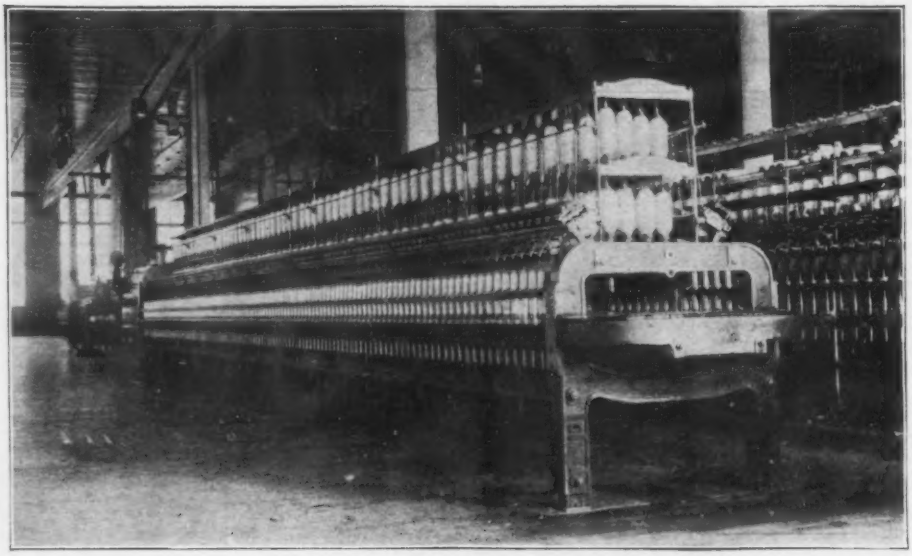
*New Jersey, Paterson. Josiah J. Bailey, treasurer of the old Ashley & Bailey Company, and others, have organized the Arcola Silk Company with capital stock of $125,000 to take over and operate a part of the Riverside plant of Ashley & Bailey Company at 71-73 Warren St., which was sold in the recent liquidation sale. The new company will manufacture broad silks and 160 looms will be operated beginning about February 1. About 30,000 square feet of floor space will be occupied. The company organized with J. J. Bailey, president; Samuel Longbotham, treasurer; and J. Bouslead, superintendent. Passavant & Company, New York, will be the selling agents.

*Pennsylvania, Northumberland. Next week the new branch plant of the Susquehanna Silk Mills of Sunbury, will begin operations. It has been in the course of construction for nearly a year and is of the most modern construction and equipment. There is room for 170 looms with necessary winding and warping machinery, but it is understood that the initial equipment will be 100 looms for weaving silk and silk mixed goods. W. H. Drumm is superintendent.

THE BROWN SPIN-WRIGHT

Commercial Frame

As Operated Successfully in a Large Mill



For Particulars Address

The Brown Spin-Wright Cotton Co.

32 Union Square, New York, N. Y.

MILL NEWS.

Pennsylvania, New Holland. Storb, Snader & Company have purchased a lot of land directly across the street from their mill and are having plans drawn for a new mill building which will be connected with the present mill by an overhead bridge. If possible the new building is to be finished by April. Storb, Snader & Company manufacture broad silks on present equipment of 250 looms.

Pennsylvania, Shamokin. The Eagle Silk Mills Co., with J. S. Brown as superintendent, are having plans and specifications prepared for a new building to be erected for them at Kulpmony, Pa., to be of brick, 2 1/2 stories high, to cost in the neighborhood of $25,000.

Pennsylvania, Williamsport. Changes being made in the plant of the Morrison Silk Company will bring the equipment up to 100 looms. Broad dress silks are manufactured. The present corporation has capital stock of $60,000 and succeeded Thomas Morrison & Sons, last October.

*Pennsylvania, Warren. It is hoped the new Warren Silk Mfg. Company will be running by the last of this month. Machinery is being installed in the mill as rapidly as possible, but there has been delay owing to the illness of Jacob Thissen, the president, manager and buyer. This plant will make silk fabrics, which will be cut up and made into silk gloves, silk hosiery and other products.

Canada, Ontario, Guelph. The Dominion Linen Mfg. Company, Ltd., is being liquidated. The concern recently made an assignment to the Trusts & Guarantee Company of Toronto. Inadequate capital is given as the cause of the difficulty. A new plant was recently built in Guelph.

Connecticut, East Killingly. Work has been started on a new boiler room for the International Cotton Mfg. Company, manufacturers of absorbent cotton, etc. A new bleachery and a new storehouse have been constructed and much new machinery has been added, bringing the plant up to a higher point of efficiency in production.

*Kansas, Lansing. The binder twine plant at the State Penitentiary which was destroyed by fire last winter, resumed operations this week. A new modern factory building has been constructed and equipped.

Massachusetts, Chicopee. Ayres, Bridges & Company, waste dealers at 200 Summer St., Boston, have leased the Blaisdell cotton waste factory and are starting it up. W. J. Shea, who was superintendent for the Blaisdell Company, is in charge of the plant.

Massachusetts, East Braintree. Henry McCusker, agent of the Garner Print Works & Bleachery at Wappinger's Falls, N. Y., has purchased the Monotiquot Mill property, formerly occupied by the International Braid Company, and will equip it to dye, bleach and finish cotton piece goods under the name of the East Braintree Bleachery & Dye Works. Henry McCusker will be the sole owner of the business. His brother, William J. McCusker, will be agent, and his sons, Thomas B. McCusker and William McCusker, will be connected with the plant, the former as treasurer, and the latter as buyer. The remodeling of the plant and arrangements for machinery are to be started at once and operations will begin in six months.

Massachusetts, Lowell. The Columbia Textile Company, a new concern which has been equipping a plant on Marginal St. for the past year, has begun operations bleaching, dyeing and finishing cotton cloths, making a specialty of fast color piece dyed cotton goods. Electric power is used. The company was incorporated in 1912 with capital stock of $150,000. C. C. Overton, 56 Worth St., New York City, is president; S. C. Worthen is treasurer, and Percy Gulline, formerly superintendent of the print works department of the Merrimack Mfg. Co., Lowell, is agent in charge of the plant.

*Minnesota, Duluth. The new mill being built by the Western Rug Company at 63rd Ave., West, and Grand Ave., will be equipped ready for operation by April 1. Construction work was started in October. This company succeeded the Western Spinning Company and has capital stock of $250,000. J. H. Barnes is president and treasurer, and Ward Ames, Jr., vice-president. The new mill will be equipped with 1,000 spindles and 16 looms operating by electric power, raw stock dyeing equipment, etc. Linen rugs will be manufactured from flax straw.

New Jersey, Hohokus. The Hohokus Bleachery recently purchased the fourteen acres, water rights, and plant formerly occupied under a lease. The Hohokus Bleachery started in business about five years ago to do a general cotton piece goods bleaching, dyeing and finishing business. The company was successful from the start and has greatly increased its output by installing new machinery and up-to-date methods. It is owned and managed by James G. Blauvelt, its president and founder and Bertram H. Saunders, the secretary and treasurer, who also has charge of the manufacturing end. These men plan to make many more improvements now that they have secured ownership of the property.

Pennsylvania, Philadelphia. Estimates are being made on a new five-story reinforced concrete factory building to be erected for A. T. Baker & Co., manufacturers of plushes, etc., on Main St., Manayunk, the plant to be 60 by 209 feet, the bids to be on January 12.

Pennsylvania, Philadelphia. F. Enneper has succeeded T. M. Janvier as manager of the Excelsior Braid Mills, 346 E. Walnut Lane, Germantown. The equipment of the plant has also been increased. They manufacture silk and cotton braids which are sold through E. Wheeler Jenkins, 301 Mariner & Merchant Bldg., Philadelphia.

Pennsylvania, Philadelphia. The Cedar Grove Manufacturing Co., 65th Ave. and 21st St., Germantown, formerly occupying a one-story frame building, are now located in a new two-story and basement brick mill, 16 by 55 feet where they are running 10 looms on sponge cloth towels, scrub, paint, bar and wash cloths and machinery wipers, the production being sold through New York. The plant is run by gas power.

DODGE

A Message to the Textile Industry

THE wonderful growth of the Dodge Manufacturing Company in the past 31 years has been entirely due to the fact that Dodge products have given Dodge customers the service they had a right to expect. This only has been the means of building up the business until we are today the largest manufacturers of power transmission machinery in the world.

Service is the watchword of the Dodge organization—service not only in attending to inquiries and orders, seeing that the goods are shipped out on time and in good condition, but service rendered by the goods themselves.

We shall reproduce in the next few issues of The Textile World Record a few letters received from customers in the textile field who are enjoying Dodge service. We want you, as a power user, to read the letters, remembering they are written in good faith by large and substantial concerns, who have been using Dodge goods from one to 25 years. Consider what service they have received and how much money, power, time and trouble they have actually saved by buying from us.

There is a wide difference in the qualities of the transmission machinery offered for sale today. Some are carefully and conscientiously built of high grade material by skillful tradesmen after designs by trained engineers—the purpose in view being to give long and satisfactory service. Others are made with only one apparent object in mind and that is to sell regardless of the future.

Buy from a company you know to be reliable, buy from a manufacturer who has the reputation for making dependable goods, buy from a manufacturer in whom you can place your trust.

Our literature fully describes the manufacture and usefulness of Dodge products—pulleys, hangers, automatic bearings, clutches, collars, couplings, rope drives, water softeners, etc.—and may be had for the request. If there are any questions you would like to ask or any transmission troubles you would like solved, just write us and we will gladly give you the benefit of our knowledge and experience without the least obligation.

Dodge Manufacturing Company

Transmission Machinery for Textile Mills

MISHAWAKA, INDIANA

PHILADELPHIA	BOSTON	CINCINNATI	ATLANTA	PITTSBURGH
815 Arch St.	139 Purchase St.	128 W. Third St.	28 S. Forsyth St.	337 Second Ave.
CHICAGO	NEW YORK	MINNEAPOLIS	ST. LOUIS	PORTLAND, ORE.
214 So. Clinton St.	21 Murray St.	100 N. Third St.	408 N. Fourth St.	14th and Lovejoy Sts.

"SAFETY FIRST, SERVICE ALWAYS"

MILL NEWS.

Pennsylvania, Philadelphia. Estimates are being made on an addition to the plant of the John T. Bailey Company, manufacturers of ropes, bagging, etc., at Delaware Ave. and Tasker St. The operation will consist of a two and three story brick building.

Pennsylvania, Philadelphia. The Kensington Skein Silk Dye Works have removed their plant from Emerald and Westmoreland Sts., to 23d and Race Sts., where larger quarters have been secured in which to conduct their operations.

Pennsylvania, Philadelphia. The new building being erected at Leiper and Adams Sts., Frankford, by James Bromiley, will be used by the Andrews Mills Co., who will install in it a line of machinery for dyeing and finishing silk piece goods. They have also installed a number of new looms and are now operating 244 looms on men's wear and dress goods.

Pennsylvania, Philadelphia. The Swiss American Embroidery Co., Adolph Katz and Ernest Seidel, proprietors, have taken over the one-story frame building at 5719 Walker St., Wissinoming and installed two large frames on which they will manufacture a line of Swiss embroideries. They will sell direct.

Pennsylvania, Philadelphia. Joseph R. Masland, for several years operating a plant for the dyeing of colors on cotton yarns at 2076 Margaretta St., has removed to the buildings formerly occupied by the Waxler Dye Works at Wakelin and Stiles Sts., Bridesburg, where he is installing new boilers and, it is also said, increasing his equipment.

Pennsylvania, Philadelphia. The Repel-A-Rain Co., with Chas. W. C. Miller, manager and secretary, M. A. Harrison, president, and William B. Taylor, treasurer, have succeeded to the business of Miller & Harrison, Cresson & Vassar Sts., Wissahickon, where they are rain-proofing silks, woolens, cotton goods, etc. A considerable amount of new machinery has recently been installed by them and they report business as good.

Minnesota, Fergus Falls. The trustees have taken charge of the affairs of the Fergus Falls Woolen Mills Company. The assets are estimated at $250,000 and the liabilities at $100,000. Owing to unseasonably mild weather a large stock of goods has accumulated that the concern has found it difficult to dispose of. It is expected a reorganization will be effected.

New York, Valatie. M. D. Howkes, J. P. Murphy and D. W. Stark have been appointed receivers for the Adhesive Gimp Mfg. Company with authority to continue the business. It is explained the company is without quick assets and available cash to continue the business and owing to this condition was forced to shut down the sweater department three weeks ago.

*Tennessee, LaFollette. An involuntary petition in bankruptcy has been filed against the LaFollette Hosiery Mills, and L. H. Carock has been appointed receiver. The concern manufactures men's and women's seamless cotton hosiery and lumbermen's socks on 9 latch needle knitting machines, 7 ribbers and 4 sewing machines. Alvis J. Carr is president; Ben F. Roach, vice-president and buyer, and G. A. LaFollette, treasurer.

Arkansas, Little Rock. Byron F. Card, superintendent of the Kansas City (Kansas) Cotton Mills Company, recently visited Little Rock to confer with A. C. Reed, representing the Factoria Land Company, regarding the possibilities of Factoria as a location for a cotton mill.

*Canada, Ontario, Galt. Narrow Fabric Weaving & Dyeing, Ltd., is the new style of Narrow Fabrics, Ltd., a small concern which began manufacturing here several months ago. Silk and cotton woven labels and shoe webbing are manufactured on 15 looms. The concern also does skein dyeing and artificial silk dyeing. The capital stock is $40.000. George Hancock, Jr., is president; W. N. Hancock, treasurer; and Percy F. Fitch, superintendent and buyer.

Canada, Ontario, Toronto. The Canadian branch of the Burlington Blanket Co., Burlington, Wis., has been moved from Windsor, Ont., to Toronto. Ventiplex fabric sweat pads are manufactured on two sets of cards and 4 needle looms.

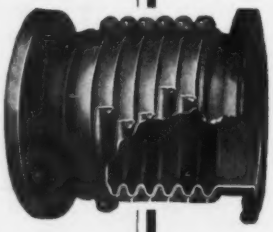
*Canada, Ontario, Welland. According to report the promoters of the projected Toronto Cotton Mills plan to organize a company with capital stock of $350,000, to begin manufacturing, with $200,000 paid in, and to build a plant consisting of a main plant, 108 by 640 feet, 1 story high, of brick construction, a warehouse, 82 by 162 feet, and a small office building. It is said that cotton duck and yarns will be manufactured.

*Canada, Quebec, Sherbrooke. It is reported the Canadian Connecticut Cotton Mills, Ltd., will begin operations before March 1. Work was started several months ago on three buildings comprising a main mill, 250 by 112 feet, two and three stories high; a storehouse, 100 feet square; and a boiler house, 50 by 40 feet. This new company has authorized capital stock of $2,225,000 and was organized by the Connecticut Mills Company of Danielson, Conn., associated with Canadian interests, to manufacture tire fabrics and paper mill cotton dryer felts. H. L. Burrage, who recently resigned as vice-president of the National Shawmut Bank, Boston, is president· Tracy S. Lewis, of Beacon Falls, Conn., vice-president and treasurer; and Obadiah Butler, formerly of New Bedford, is secretary and manager. R. J. Caldwell Co., of New York, are the selling agents and are reported to have sold the mill ahead for a long term.

Connecticut, Killingly. The Killingly Mfg. Company at Williamsville is operating day and night and more operatives will be added to the working force. This plant is controlled by the Goodyear Tire & Rubber Co., of Akron, O., and manufactures automobile tire fabrics and specialties. The plant has recently been remodeled and reequipped.

*Connecticut, New Boston. The Fabyan Woolen Company's local plant, which was recently damaged by fire in one of the out buildings used as a picker room, is in operation.

The New Badger Expansion Joint Saves Time and Trouble



Here's an expansion joint for steam, gas, or water pipe lines which is low in first cost, is absolutely reliable, never requires packing, and lasts a life time. It is made of corrugated copper with equalizing rings to insure each corrugation taking its share of the expansion. Made in all sizes and for any pressure.

Send now for our new catalog showing construction and giving description and result of exhaustive tests.

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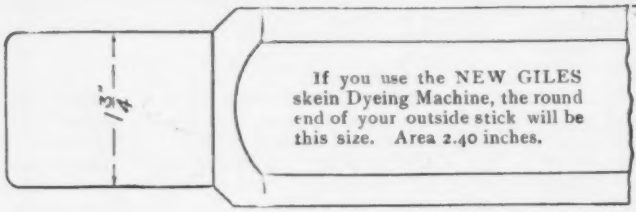
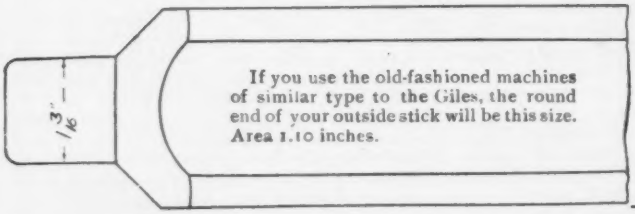


If you use the NEW GILES skein Dyeing Machine, the round end of your outside stick will be this size. Area 2.40 inches.



If you use the old-fashioned machines of similar type to the Giles, the round end of your outside stick will be this size. Area 1.10 inches.

The outside stick in the **New Giles** skein dyeing machine is **2½ inches** longer than the inside stick, so that when the ferrule becomes loose or breaks, the stick can be turned down and you have practically a new stick.

This feature is found in the **Giles** machine only, for in the old fashioned type, the inner stick, with its two small round ferrules, is the longer stick, so that when either stick is broken, it is fit only for kindling wood.

We can tell you many more money saving features of the new Giles Machine

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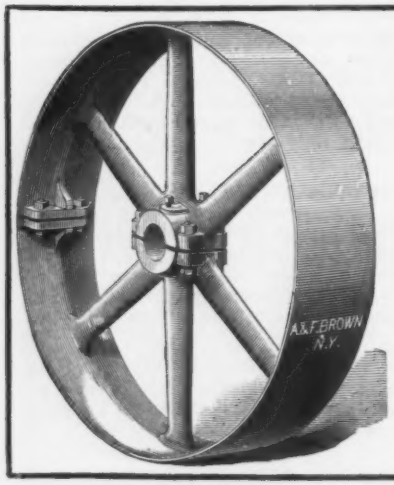
AMSTERDAM, N. Y.



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MILL NEWS

New Jersey, Elizabeth. Max Fern, a local real estate dealer, heads a new concern which is establishing a sweater knitting plant here under the name of the Union County Knitting Mills. It is understood the business will be incorporated. A location has been secured at 9 First St. and operations will soon be started.

Maine, Brunswick. The equipment of the Brunswick Knitting Mill, manufacturers of women's hosiery, has been increased from 15 knitting machines to 20 knitting machines.

Michigan, Grand Rapids. It is estimated that the knitting plants in Grand Rapids increased their total output about forty per cent. during the past year. The Grand Rapids Underwear Company, now occupying leased quarters, is building a factory of its own in the South End on Garden St., as noted in a previous report.

New Jersey, Jersey City. The sweater manufacturing business formerly conducted by R. Havez has been increased and the style changed to the Majestic Knit Mills. The equipment is now sixty flat knitting machines and 30 sewing machines, and employment is given to about 90 hands. The plant is located at 104 Hopkins Ave., and Reinhold Havez is in charge.

Massachusetts, Worcester. A fire which started in the drying and finishing room of the Swananoa Mills, 43 La Grange St., caused damage of about $500 on the building, and loss on stock and merchandise which will run in the vicinity of $6,000 or $7,000, due chiefly to smoke and water. Repairs are being made and they expect to resume work about January 22. This concern recently succeeded the L. D. Thayer Mfg. Company and manufactures tapes, ribbons and other narrow fabrics.

New York, Cohoes. A fire in the carding room of the Hope Knitting Company caused loss estimated at $1,000, chiefly due to water.

New York, Little Falls. The top floor of the plant of Rugene Walrath Company, known as the Riverside Knitting Mill, was damaged by fire and the loss will be about $3,000 on stock and building. Mr. Walrath carries $16,000 insurance on the stock. The building is owned by the Utica Gas & Electric Company.

New York, New Hartford. A small fire in the boiler room of the Maxwell Mfg. Company was extinguished with slight loss.

New York, New York City. The Schwartz Knitting Mills, 141 W. 36th St., manufacturers of knit cloth and sweater coats, recently suffered a severe loss by fire. They carry $5,000 insurance on stock and $1,000 on machinery.

Ohio, Columbus. A fire in the newly equipped woolen mill at the Ohio Penitentiary was extinguished with small loss. This department was equipped only a few weeks ago to manufacture woolen blankets and other woolen fabrics for the various State institutions.

Pennsylvania, Philadelphia. M. J. Seidman & Co., 106 S. 11th St., have shut down their knitting plant following a fire, and at present no date has been decided upon for resuming.

Canada, Ontario, Toronto. A new company has been organized under the style of the Olympic Mfg. Company to manufacture sweater coats and knitted novelties. The headquarters are at 64 Colbourne St.

Canada, Quebec, Three Rivers. A new concern has been organized under the name of the Cambridge Knitting Mills, Ltd., with capital stock of $50,000.

*Michigan, Detroit. The new Victor Knitting Mills have purchased the business of the Ryan Bros. Knitting Company, 48-50 Jefferson Ave., and will continue the manufacture of complete lines of sweaters, fancy knit goods and woolen hosiery of all kinds. The plant contains 50 knitting machines, 5 sewing machines, and electric power equipment. David R. Stocker, formerly buyer for A. Krolick & Company of this city, is president and buyer.

*New Jersey, Camden. The Highland Shaker Sweater Co., recently incorporated with a capital of $125,000, has for its officers William Harris, president; J. A. Bottomly, treasurer and buyer; and H. G. Balderston, secretary and vice-president. They are operating 20 knitting machines and 10 sewing machines on pure worsted shaker sweater coats which they are selling direct, and report business as good. The plant is located at 9th and State Sts.

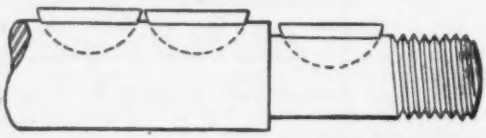
New York, Binghamton. It is reported that J. & D. D. Miller Company, silk manufacturers, contemplate installing new machinery for silk gloves, underwear and hosiery.

New York, Brooklyn. Fau & Strauss, who were recently reported as establishing a plant to manufacture sweaters and fancy knit goods at 233 Humboldt St., have moved to 35 6th Ave., New York City.

New York, New York City. The Wright's Underwear Company, Inc., has been organized with capital stock of $1,275,000 to manufacture hosiery, underwear and other textiles. The new corporation will succeed the Wright's Health Underwear Company, continuing the business without change. Plants are operated at Cohoes and Troy, N. Y. The main office is at 74 Leonard St., New York.

*New York, Hudson. In reference to the recent increase in the capital stock of the Swansdown Knitting Company from $20,000 to $150,000, the company states that the reason for the increase is that in the past the plant has been operated by the Swansdown Knitting Company as an operating company. Part of the real estate and machinery was owned by other interests. The Swansdown Knitting Company has now taken over the entire property, including all the real estate, machinery, etc. The plant is not to be enlarged.

Key Seating Attachment
FOR
Whiton Gear Cutter



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Power Specialty Company,

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Arlington Machine Works

TEXTILE FINISHING MACHINERY

ARTHUR BIRCH, Proprietor **Arlington Heights (near Boston), Mass.**

MILL NEWS.

Pennsylvania, Norristown. The Wallace Wilson Hosiery Co., operating a branch mill here under the management of Harry Parker, Jr., has increased the equipment of the plant to 64 knitters, 43 ribbers and 12 loopers, which they are operating on infants' hosiery. The building has been enlarged by a two-story and basement brick addition, completely doubling its size and in which they are now arranging for the installation of 40 new knitters and 20 ribbers. The plant is being run to its fullest capacity. The main office and mill of the company is in Frankford, Phila.

Pennsylvania, Philadelphia. The United Knitting Co., now located at 335 Market St., are removing their plant to larger quarters at 721-23 Arch St., where they will continue to manufacture sweater coats and fancy knit goods. They sell direct.

Pennsylvania, Philadelphia. The Standard Knitting Mills of Pennsylvania, engaged in the manufacture of sweater coats, are arranging for the removal of their plant from 7th St., above Chestnut, to larger quarters at 721 to 729 Arch St., where they will occupy the entire fourth floor, giving them four times the space occupied by them at the old address. This will enable them to enlarge their equipment.

Pennsylvania, Philadelphia. The Calvin Knitting Mills, 5120 Wakefield St., Germantown, have increased their equipment to 13 knitters and 20 sewing machines, on which they are manufacturing sweater coats, skirts, bathing suits, etc., which they sell direct and through New York. J. C. Lawry is the superintendent and buyer. They use cotton, wool and worsted yarns.

Tennessee, Cleveland. Ten knitting machines have been added to the equipment of the Weiss Hosiery Mill, giving total equipment of 70 knitters and 15 ribbers, making seamless hosiery and half hose.

Tennessee, Englewood. The Englewood Mfg. Co., a new concern recently established here and making misses' and children's ribbed hosiery, will add additional ribbers.

*Tennessee, South Pittsburg. R. C. Aycock, president, treasurer, manager and buyer of the Aycock Hosiery Mills, expects the new dye house to be finished and equipped by June 1. The plans for the enlargement are completed.

*New York, New York City. The Atlantic Knitting Mills, Inc., recently organized as noted, succeed the Atlantic Knitting Mills, Strassner & Bettman, proprietors, without change.

*Vermont, Bennington. The E. Z. Waist Company will have practically the same equipment in its new quarters as it had in the old plant at North Bennington which was burned out in October. The capital stock is now $50,000. The E. Z. children's knitted underwaists and union suits will be manufactured on 65 latch needle knitting machines and 70 sewing machines operating by steam power. G. W. Clark is president; F. E. Haight, 61 Worth St., New York, treasurer; and H. L. Hall, superintendent. The product is sold to jobbers by A. S. Haight & Co., N. Y.

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Pure Soft Water For Textile Mills

Soft water is a vital necessity in the textile industry. Hard water with its incrusting solids and impurities not only cause boiler scale, but give the finished product of the mill a harsh, rough touch instead of the smooth, silky feel so necessary.

We manufacture an apparatus that is playing an important part in textile practice. By its use treated water is possible throughout the entire plant for boilers, laboratories, scouring, rinsing, bleaching, dyeing, etc.

The South Bend Woolen Company, one of our recent customers, says that since installing the system scale has been eliminated from boiler tubes, they are enabled to wash their wool with considerable less scouring liquor, and at the same time produce a cleaner and loftier wool, with shades that hold season in and out. On their cloth washers soft water has saved a large quantity of soap.

We would be glad to discuss our system with any mill owner, manager or superintendent. Literature covering the subject may be had for the asking.

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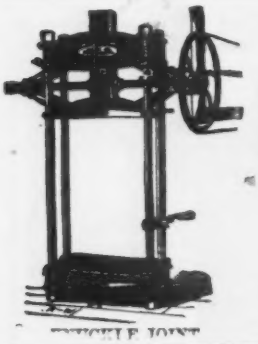

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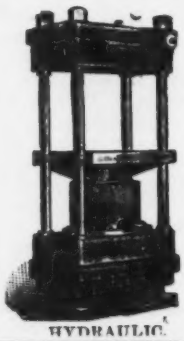

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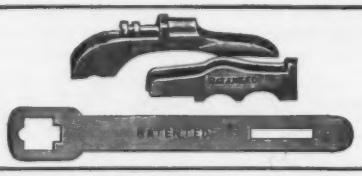

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MILL NEWS

*Washington, Spokane. An increase of about 75 per cent. has been made in the production of the Spokane Knitting Mills, 1107 Railroad Ave., manufacturers of sweater coats. The equipment now includes 20 flat knitting machines and 10 sewing machines operated by electric power.

Wisconsin, Milwaukee. V. Montwid & Son, manufacturers of cardigan jackets and sweaters of all kinds at 561-63 E. Water St., are building an addition and expect to put in 50 more automatic machines to be operated by electric power. Victor Montwid is buyer.

Wisconsin, Oconto. During the past month the branch plant of the Marinette (Wis.) Knitting Mills has been enlarged about 200 per cent. A number of knitting machines will shortly be brought here.

*New York, Cohoes. The Capital Knitting Company, which was burned out in the fire early in December, has obtained quarters in No. 1 Victor Mill and S. E. Clifton, president and treasurer, expects that manufacturing will be started next week. Women's and children's ribbed underwear and wash cloths are manufactured.

*New York, Valatie. The Adhesive Gimp Mfg. Company will shortly be reorganized. The plant will be operated under the direction of the receivers recently appointed until the reorganization is effected. The present trouble is due to a lack of business during the fall which greatly cut off their income. The firm is perfectly sound as regards assets, and the receivership is a voluntary proceeding to facilitate reorganization.

North Carolina, Littleton. F. H. Mead, of Farmville, Va., the purchaser of the Littleton Hosiery Mills property, will start up the plant next week making men's and women's seamless hosiery. The mill has been idle for the past year or two.

Virginia, Portsmouth. The Tidewater Knitting Mills of William Sloane & Co. have resumed operations after a suspension of work for two weeks during which time repairs and improvements were made to the plant. The company is trying to secure additional employes.

New Jersey, Paterson. Sweeney & Co., Inc. have just installed twelve of the latest type ribbon looms in their plant, located in the Van Kirk Mill. Another improvement being made is the moving of the finishing department to the basement, which is being fitted up for the purpose.

New York, Clayville. No definite plans have been made as yet for increases by the directors of the Clayville Knitting Company. The capital stock was recently increased from $250,000 to $500,000. Men's ribbed underwear and union suits are manufactured.

New York, Little Falls. Changes are to be made in the power plant of the Phoenix Underwear Company and it is understood a new electric generator is to be installed. They have no definite information to give out at present.

Why Did the American Felt Co.—

adopt the Kaumagraph Process? This company recently decided to trademark a certain product in high favor with manufacturers because of its unusual merit. An inexpensive process was needed which would produce a uniformly handsome mark in keeping with the character of the product; a permanent mark to survive handling;—a process both rapid and adapted to unskilled labor. The need was met by the Kaumagraph Process.

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You buy Kaumagraph stamps ***ready for use,*** either in packages or in rolls of thin paper tape. They are applied automatically to goods during some process of manufacture, or very rapidly by hand with unskilled labor. Their cost is insignificant, especially in large quantities.

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Textile Directories

The following directories of the textile manufacturing industry in Great Britain and Continental Europe find the most favor with American users:

Worrall's Spinners' and Manufacturturers' Directory of Lancashire, price $2.50.

Worrall's Yorkshire Textile Directory, price $2.50.

Worrall's Ireland, Scotland and Wales, price $2 50.

Worrall's Continental Directory of Cotton Spinners and Manufacturers, price $5.00. (The information for each country is published in English in addition to native language.)

Rey's Le Monde Textile, price $5.00. (The text is in French.)

Rousset's Annuaire De L'Industrie Textile, price $7.50. (The text is in the native language of each country.)

Kelly's Manufacturers of Textile Fabrics, price $15.00. (England, Scotland, Wales and principal towns in Ireland.)

Kelly's Merchants, Manufacturers and Shippers of the Principal Trading Centers Throughout the World, price $15.00.

Worrall's directories and Kelley's directories are carried in stock and can usually be supplied immediately on receipt of price. Other foreign directories are imported only on order *Directories cannot be sent on approval*

Lord & Nagle Co., 144 Congress St
BOSTON
Publishers of the Textile World Record

MILL NEWS

Massachusetts, Williamstown. The plant of J. S. Boyd Company, manufacturers of corduroys and velveteens, was shut down during the week owing to a break in the engine.

Michigan, Battle Creek. C. G. Schellenberger of this place is reported to be seeking a location in the South for a woolen mill which will employ 500 hands.

Michigan, Cheboygan. James F. Moloney, formerly president of the Cheboygan County Savings Bank, proposes to establish a woolen mill here. It is planned to tear down a brewery located on the bank of the river to make room for the projected woolen mill.

*Minnesota, Fergus Falls. At a recent meeting of the creditors of the Fergus Falls Woolen Mills Company plans were made to organize a new company under the name of the Otter Tail Woolen Mills with capital stock of $50,000 to take over the plant and business. The sale of some detached real estate and a quantity of finished goods was approved.

New Jersey, Camden. The Textile Fabric Mills are now located at 115 Erie St., where, in addition to making a line of cotton braids and tapes, they are also coning yarn for the knitting trade.

New Jersey, Camden. The Infallible Waterproofing Co., Inc., with John Lunn as president, is operating a plant on the waterproofing of textile fabrics and leather at 110 Erie St., where they occupy a large two-story brick building.

New Jersey, Groveville. A charter has been granted Morris & Company, Inc., with capital stock of $200,000 to manufacture and deal in cotton duck. The incorporators are John J. Kuser, William McK. Morris and Edwin J. Morris. The new corporation takes over the business of the same name without change.

New Jersey, Newark. A charter has been granted Thornton, Atmore & Company with capital stock of $75,000 to manufacture silk and other textile fabrics. The incorporators are E. D. Thornton, East Orange; M. Ravner, New York City; R. R. Atmore, Brooklyn.

*New Jersey, Paterson. The business of Wishnack & Hollritt, manufacturers of broad silks, is to be continued under the name of F. Joseph Hollritt. It was noted previously that Messrs. Wishnack & Hollritt had dissolved partnership.

*New Jersey, Paterson. The Weston E. Good Company, recently reported incorporated with capital stock of $25,000, will begin operations at once at 66-74 Grey St., doing silk throwing on commission, making a specialty of work for the knitting trade. The business of Weston E. Good, silk throwster, has been taken over. The plant contains 4,000 spindles. As suggested in a previous report Hugo Huettig, a manufacturer of silk hosiery in the New Hall Mill, is interested and the new concern will throw silk for his knitting plant, also for two or three other knitting concerns. Weston E. Good is president, superintendent and buyer: and Emil G. Katterman is treasurer.

MILL NEWS

New York, Mdidletown. The mill formerly occupied by H. W. Kimball & Company, silk throwsters, has been purchased by a machinery manufacturing concern. The silk machinery has been removed.

New York, New York City. The Acorn Braid Company, Inc., manufacturers of braids and trimmings, have removed from 45 University Place to larger quarters at 147 West 26th St.

New York, New York City. Larger quarters in the building at 37 West 3d St. have been leased by the New England Braid Mfg. Company, now located at 42 Bond St.

New York. New York City. Stern, Katzenstein & Stern Company is the name of the new company organized with capital stock of $125,000 to make linings and other fabrics. The incorporators are Nathan, Larchmont and Victor Stern, Brooklyn, N. Y. Alexander, Cohn & Sondheim, 51 Chamber St., New York, are the attorneys.

New York, New York City. The Aaron Cohen Company has been incorporated with capital stock of $75,000 to make silks, satins, velvets and other goods. The incorporators are Aaron and Birdie Cohn, 24 Mt. Morris Park, West, and others.

*New York, Niagara Falls. The Niagara Falls Linen Company deny that they are interested in building a new linen manufacturing plant in Niagara Falls, Ont. They propose to extend their mill building early in the spring and make additions in the equipment as noted recently. F. E. Adams is general manager.

New York, Saratoga Springs. Joseph H. Clark, president of the Clark Textile Company, has announced that his company will insure the life of every employe in its various plants. The premiums will be paid by the Clark Textile Company and the amount of the policy, on the death of any operative, will be paid by the life insurance company to the beneficiaries in twelve monthly payments. No expense to the employes is involved in the scheme.

*New York, Utica. R. H. Canfield & Co., Inc., recently reported organized will not manufacture textiles. A retail business will be carried on.

*New York, Utica. No action was taken as to reopening the Globe Woolen Company's plant at the annual meeting of stockholders. The old officers were reelected.

*Massachusetts, Northampton. A small knitting plant is being equipped on Crafts Ave. by the Northampton Hosiery Company, recently incorporated with capital stock of $10,000. Lines of men's, women's and children's hosiery in silk and cotton will be manufactured on initial equipment of 5 knitting machines. Electric power will be used. Thomas J. Roberts, treasurer and buyer, states that they expect to have more machines when they become more familiar with the business. Frederick Oliver is president and superintendent, and Mr. Roberts is treasurer and buyer.

GANDY

STITCHED COTTON DUCK BELTING
HAS THIS EDGE PAINTED GREEN

It is but natural that any article which has given satisfaction to thousands of users for over 37 years should be widely imitated. We learn most every day of some user who has been misled into buying some inferior imitation of the Gandy Belt, to his sorrow and dissatisfaction.

For the protection of our customers we now use the three identifying marks: 1st, The Green Edge; 2nd, The trade mark shown on the roll of belt (see above cut); 3rd, The brand "The Gandy Belt."

These marks mean economy, durability, permanent satisfaction. Look for them; be sure you find them. Get the "Gandy Belt."

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New York Office: 88-90 Reade Street

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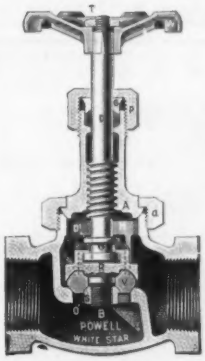
(Especially The White Star Valve)

FIVE POINTS OF EFFICIENCY COMBINED IN THE POWELL "WHITE STAR" GLOBE VALVES



1. Body symetrically designed and well proportioned.
2. Union bevel ground joint connection between body and bonnet.
3. They have Regrindable, Reversible and Renewable non-corrosive "Powellium" discs.
4. Observe illustration of disc holder "R" easily removed from stem "D" when necessary for repairs.
5. All working parts are interchangeable. Stem can be re-packed under pressure.

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CINCINNATI, O.

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the simplicity the exceptionally bright figures and the variety of applications possible

MAKE
DURANT COUNTING MACHINES

exceptionally popular with mill owners who appreciate the *right* way to increase profits by decreasing waste. 30 styles and sizes for piece, pick and linear counting. Sold on 30 days trial. Ask for catalog 20.

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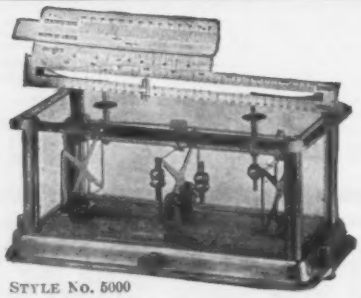

STYLE No. 5000

TORSION BALANCE COMPUTING TEXTILE SCALES
Style No. 5000 gives the weight per running or square yard of any width, in ounces and fractions of an ounce.

THE TORSION BALANCE COMPANY
Manufacturers of "Special Scales for Special Purposes"
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BOTTLE TIGHT
PRACTICALLY NO FRICTION
PRACTICALLY NO WEAR
LESS FUEL LESS LABOR
INCREASED EFFICIENCY

MILL NEWS

*North Carolina, Brevard. The sudden death of Charles B. Skipper will make necessary a revision of the plans for the reorganization of the Brevard Cotton Mills, Inc. Mr. Skipper recently purchased an interest in the Brevard Cotton Mills, Inc., and was to become president and manager January 1. He intended to add as soon as possible 2,000 spindles and to make further increases before the end of the year.

*North Carolina, Forest City. R. R. Haynes, president of the Cliffside (N. C.) Cotton Mills, is interested in the project of building a cotton mill at Forest City, and efforts are being made to have him assume the management of the projected plant.

North Carolina, Tarboro. It is reported an offer has been made for the purchase of the Tarboro Cotton Factory, which is now closed, for $150,000. The indebtedness of the company, including a bond issue of $100,000, is about $165,000. The plant contains 13,000 ring spindles and 200 looms which have been operated on 2/8s to 2/20s cotton yarns and convertible cloths.

Ohio, Cleveland. W. E. La Ganke is operating a plant at 5827 Broadway under the style of the Reliable Dye & Bleach Works, dyeing and bleaching cotton, woolen and worsted yarns for the knitting trade.

Ohio, Urbana. The machinery of the Urbana Woolen Mills has been disposed of and the buildings will be used for other purposes. The mill shut down several months ago.

Pennsylvania, Chester. A concern known as the Art Textile Company is reported to have leased 15,000 square feet of manufacturing space in the plant of the Arasapha Mfg. Co., and will manufacture dress goods, rugs and fancy goods.

Pennsylvania, Darby. The Griswold Worsted Company, manufacturers of mohair and worsted yarns, will immediately begin the running of their plant sixteen hours a day, employing two shifts of operatives eight hours each.

Pennsylvania, Lewisburg. It is reported the Lewisburg Woolen Mill will shut down. This is a small three-set mill with 17 looms weaving woolen cassimeres.

Pennsylvania, Philadelphia. Application has been made for a charter for the Robert J. & R. Ritchie Co., Robert Ritchie, Robert Ritchie, Jr., and Joseph H. Ritchie, incorporators. The plant of the company is located at 4060 Orchard St., Frankford, where they are manufacturing upholstery fabrics. They state that this application is simply made for the purpose of renewing an old and limited charter which is about to run out.

Maine, North Dexter. The name of the Greenwood Woolen Company has been changed to the Main Stream Woolen Company. Charles A. Greenwood is proprietor and agent, and C. P. Gilman, superintendent. Cotton warp sacking and broadcloths are manufactured on four sets of cards and 28 looms. S. H. & O. B. Newhouse, New York City, are the selling agents and buyers.

MILL NEWS

*Pennsylvania, Philadelphia. J. Rosen & Son, reported some time ago as starting a plant in Frankford for the manufacture of silk ribbons, are located at Adams Ave. and Wingohocking St., where they are operating 20 looms with Joseph Wolf as superintendent. The main office is at 4151 Madison St., Paterson, N. J.

Pennsylvania, Philadelphia. The Journal Lubricator Company, located at 1543 Ruan St., Frankford, has been taken over by other parties who have removed the plant to 81 Pierpont St., Brooklyn, N. Y. Lubricating pads were manufactured.

Pennsylvania, Philadelphia. Royle & Craven, Kinsey and Josephine Sts., Frankford, manufacturing a line of mitchelline bed spreads, are operating 8 broad looms and selling their production direct.

Pennsylvania, Philadelphia. John L. Waxler, for many years engaged in the dyeing of cotton yarns at Wakelin and Stiles Sts., Bridesburg, has retired from business and leased his plant to Joseph R. Masland.

*Pennsylvania, Philadelphia. The report that the Philadelphia branch of the Myhnepo Ribbon Mills of College Point, N. Y., is to be known as the Invincible Ribbon Mills is incorrect. The name of this plant is the Independence Ribbon Mills and it is located at Third and Ontario Sts.

Pennsylvania, Philadelphia. The building on the south side of Main St. and the southeast side of Walnut Lane, Manayunk, 152 by 100 feet, has been sold to the Manayunk Yarn Manufacturing Co., a new concern recently reported by us as equipping it for the manufacture of waste yarns. The sale is subject to a mortgage of $6,000.

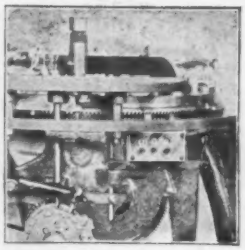
Pennsylvania, Philadelphia. The Philadelphia Wood Silk Co., with offices at 246 Chestnut St., and an experimental plant in Chester, Pa., are manufacturing a line of artificial silk. The product is now mostly experimental but it is understood that a considerable quantity of the material will be put on the market within a short time.

Pennsylvania, Philadelphia. Wiliam H. Dyson is reported as having leased a number of looms in the plant owned by W. A. Gardner at Somerset and Boudinot Sts., on which he is manufacturing a line of men's wear and selling direct.

Pennsylvania, Philadelphia. The Meyer & Leithold Silk Dyeing Company, operating a plant for the dyeing of natural and artificial silk on Collins St., above Allegheny Ave., have recently been sold out at public auction, the equipment having been bought in by other parties. As to whether they will start it up again nothing can be said at this time.

Pennsylvania, Philadelphia. A charter is being asked for the Gastonia Cotton Yarn Co., with John H. Daingerfield, Samuel S. Schuford and Arthur J. Pursell, as incorporators. This concern, which has opened up offices in the Mariner & Merchant Bldg., 3d and Chestnut Sts., will not manufacture, but will sell yarn to the trade, handling the output of mills located in different sections of the country and acting as their agents.

ELM CITY COUNTER



registering the number of sweaters turned out on a

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The Counter is easily attached and keeps accurate record of the machines output. Our Counters are adaptable to all purposes and are extensively used for counting yards, picks and other units in textile manufacture

They Save Waste, Prevent Errors and Disputes

We have a variety of Counters for textile mill uses.

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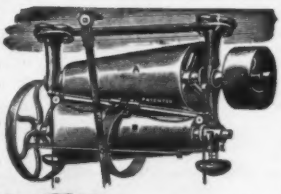
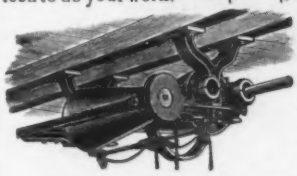
Ask for "Catalog 18."

Variable Speed Countershafts

The Evans Friction Cone Pulleys will drive your machines at any desired speed from 1 to 6 by simply pulling a cord.

They are guaranteed to do your work.





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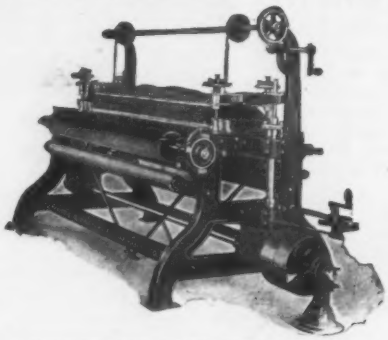

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MANUFACTURERS OF

Metallic Rolls

Especially adapted for Cotton Mills. 25 to 33 per cent more Production Guaranteed. Weight Reduced 33 to 50 per cent. No Leather Covering Bill.

WRITE FOR PARTICULARS

MILL NEWS

Pennsylvania, Philadelphia. The National Asbestos Company, operating 8 looms on asbestos fabrics and yarns, has for its officers D. G. Jones, president; W. H. Wampole, vice-president; and Frank Wampole, secretary and treasurer.

Pennsylvania, Philadelphia. Thomas Strange & Sons have recently acquired possession of the Empire Bed Spread Mills, located at Green Lane and Mitchell Sts., Roxborough. They are manufacturing a line of mitchelline quilts on 4 broad and 2 narrow looms, and selling their production through Frank Leake & Co., Philadelphia.

*Pennsylvania, Philadelphia. The Manayunk Yarn Co., Main St. and Walnut Lane, Manayunk, recently incorporated with a capital of $20,000; John Harmer, president; John Foyle, treasurer, and Elmer Street, secretary and superintendent, are still working on the plant and getting it ready for operation. New boilers and other additions to the buildings are being made and six sets are being installed on which they will manufacture double reel carpet yarns and railroad waste, selling the production direct.

Pennsylvania, Scranton. The settling of the ground over a mine cave wrecked the boiler plant of the South Scranton Throwing Company. The mill is closed indefinitely or until arrangements can be made for power.

Rhode Island, Arkwright. The local plant of the Interlaken Mills, manufacturers of book cloths, has resumed manufacturing after a shut down of ten days for repairs and improvements.

Rhode Island, East Greenwich. The Greenwich Bleachery, bleachers and finishers of cotton goods, are running night and day to keep up with orders.

Rhode Island, Forestdale. Charles S. Seagrave, administrator of the estate of the late F. J. Pitts, is conducting the shoddy and flock business formerly carried on by Mr. Pitts under the name of James Pitts & Sons.

Rhode Island, Knightsville. The Caldwell Mfg. Co., manufacturers of flexible gas tubing and shoe laces, have consolidated with the Atlantic Tubing Co., of Providence.

Rhode Island, Providence. Some of the machinery in the National & Providence Worsted Mill of the American Woolen Company is running overtime until nine o'clock at night. The finishing department and some of the weaving department have been running evenings for several weeks.

Rhode Island, Providence. According to report the Wanskuck Company will take over the plant and business of the Steere Worsted Mills and wind up the affairs of the latter company.

Rhode Island, River Point. The Warwick Lace Works of this place, and the Phenix Lace Mills, of Phenix, are forced to operate nights to keep up with the demand for products.

MILL NEWS

*South Carolina, Batesburg. It has been voted to increase the capital stock of the Middleburg Mills to $400,000 as recommended by the directors.

South Carolina, Spartanburg. The Chamber of Commerce is negotiating with Robert T. Cameron, president and general manager of the Aseptic Cotton Products Company of Chattanooga, Tenn, relative to establishing a bleachery in Spartanburg.

*Texas, Brenham. C. G. Schellenberger of Battle Creek, Mich., who has been reported as seeking a location in the South for a woolen mill, recently visited Brenham for the purpose of going over his project with the Young Men's Business Association and representatives of the Santa Fe R. R.

Washington, Washougal. W. D. Sappington, trustee, is offering for sale the plant of the Union Woolen Mills. This is a two-set mill, fully equipped and in good condition. The Pendleton Woolen Mills of Pendleton, Ore., are operating the Union Woolen Mills under a month to month lease and the property is offered for sale as a going plant.

West Virginia, Webster. New interest is being taken in the project to rebuild the plant of the Webster Woolen Mills Company, which was destroyed by fire last February. The plan is to increase the capital stock from $10,000 to $50,000 and to build a mill of about twice the capacity of the old two-set plant.

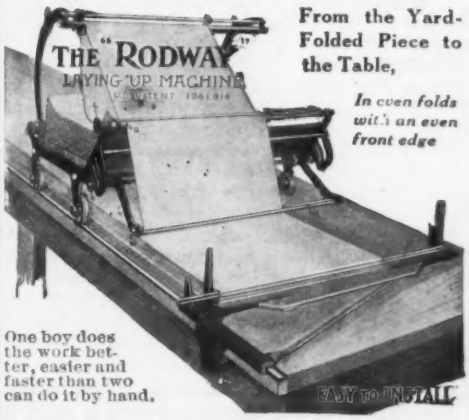
*Wisconsin, Oshkosh. No enlargements are contemplated just now by the Oshkosh Grass Matting Company, manufacturers of grass carpets and rugs. The capital stock was recently increased from $300,000 to $500,000.

Wisconsin, Prairie du Chien. The cotton batting plant of Paris & Merrill Company is closed and is being offered for sale. The woolen mill, operating 5 sets and 30 broad looms, is running as usual on dress goods, flannels and blankets.

Pennsylvania, Philadelphia. Following the dissolution of the firm of J. & B. Allen, manufacturers of fancy knit goods and hosiery on Sheldon St., below Wister, Germantown, Benjamin F. Allen and Horace Allen will continue the fancy knit goods business, with the old equipment in the old mill. Benjamin Allen, 3d, has taken over the equipment of the hosiery department, which he is removing to the Cope Mills, at Wayne Junction, where he has leased the two-story and basement mill building facing the railroad and in which he will install the machinery and continue the manufacture of hosiery under the name of the Allen Hosiery Co.

Pennsylvania, Philadelphia. The Standard Knitting Mills of Pennsylvania, are applying for a charter with Harry Cohen, Alexander Seifert and Alexander J. Brian, as incorporators. This company is now located at 721-23 Arch St., having recently removed from 7th St., above Chestnut, where they manufactured a line of high grade sweater coats.

To Fold to Any Length



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In even folds with an even front edge

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MILL NEWS.

Pennsylvania, Reading. Charles E. Leippe, head of the Reading Knitting Mills, and president of the National Association of Hosiery & Underwear Manufacturers, is quoted as stating that good business is assured for at least six months, as local mills have more orders than they can fill, which will keep them busy until June.

*Pennsylvania, Sinking Spring. The Model Underwear Company will be incorporated with capital stock of $25,000. This concern took over the mill at West Lawn formerly operated by the West Lawn Knitting Mills. It is headed by N. H. Fichthorn, Edward F. Wentworth, and George W. Heffelfinger.

Pennsylvania, Wilkesbarre. Doctors Hogg and Newhart, physicians in this town, are reported as considering a project for the establishment of a plant for the manufacture of women's ribbed underwear. What the plant will contain or when it will be started up is at this time a matter of conjecture.

Tennessee, Rogersville. A meeting was held here recently to consider establishing a $25,000 knitting mill, and the larger part of this amount was subscribed by business men. It is said that plans will be drawn up shortly for the projected plant.

Utah, Lehi. James M. Kirkham and associates in the Lehi Knitting Works will dispose of the knitting plant by sale.

Utah, Logan. The name of the knit goods manufacturing business conducted by Edw. N. Stone & Company has been changed to the Keystone Knitting Works. Edw. N. Stone continues as manager and buyer. The plant has been increased to 6 flat knitting machines and 9 sewing machines, manufacturing sweater coats and underwear.

*Vermont, Bennington. The Bennington Hosiery Company is now completely established in its new quarters in the Tiffany Mill. The concern has a large number of orders ahead.

PICKER STICKS, SWEEP STICKS AND PICKER ARMS

No. 1. HICKORY.

We have been supplying many of the largest Textile Manufacturing Plants with Second Growth **HICKORY PICKER STICKS** for twenty-five years. We are in a position to make you right prices, and to furnish you with just such quantities as you desire. Our Picker Sticks are made of the best hickory possible to obtain, and are thoroughly guaranteed. Sticks are made and fitted exactly as per sketch or sample, which should always be sent with first order.

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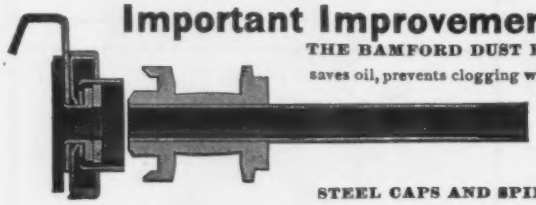

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saves oil, prevents clogging with dust and lint, thereby insuring longer life to the tubes, saves labor, maintains uniform speed, **and most important of all, makes PERFECT YARN.** Refer to largest worsted mills.

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IT SAVES $ $
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PRODUCTION PERCENTAGE

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of good, durable quality, correct shape and finish, at prices based on a business of many sales, at prices that bring repeat orders—can be had of us, for—

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Loom Duster

JUST ONE

OF THE MANY MADE FOR YOU

MILL NEWS

*Tennessee, Cleveland. Little has been heard during the past week regarding the new knitting mill project and it is believed locally that the plan has been dropped.

Tennessee, Knoxville. Jacob Spiro, 423 State St., proprietor of the East Tennessee Cider & Vinegar Works, may engage in the hosiery business and is interested in particulars of equipment.

Wisconsin, Wausau. Business men have been invited to attend a meeting at the Wausau Club in the interest of a knitting mill project. A. C. Schmidt, secretary of the Wausau Advancement Association, is in communication with a concern which contemplates removing its plant to this city.

Connecticut, North Grosvenordale. A voluntary increase of 5 per cent. has been given to 2,000 operatives of the Grosvenor-Dale Company.

*Connecticut, Norwich. The Reliance Yarn Company, reported incorporated a short time ago, really succeeds the Reliance Worsted Company, which was recently liquidated, and will operate the carding and spinning departments on woolen and merino yarns for weaving and knitting. The weaving department has been discontinued. Eight sets of 48-inch cards will be operated by steam and electric power and the concern will dye raw stock and yarn. The men interested are John Campbell, Philip Henault and A. Henault. Mr. Campbell is president, Philip Henault, treasurer, agent and buyer.

*Connecticut, Vernon. The Fitch-Belding Company, reported incorporated several weeks ago, will manufacture art goods and embroidered linens. It was understood at the time the concern was organized that silks were to be manufactured, but this is not the case.

Florida, Jacksonville. The New Industries Committee of the Board of Trade has received a proposal from a Tennessee cotton manufacturer relative to establishing a mill here to manufacture long staple cotton.

Georgia, Augusta. A general strike is threatened as a result of difficulties between the John P. King Mfg. Co., and their operatives. The Southern Textile Association has voted to support the King Company in resisting any unreasonable demands.

Georgia, Cedartown. A movement is on to establish a new cotton yarn mill in Cedartown and a 15,000-spindle plant may be established in the buildings formerly occupied by the Cedartown Knitting Company. The interests which controlled the Cedartown Knitting Company head this project.

Maine, Skowhegan. William S. Whitney, of Lawrence, Mass., supervising engineer of the American Woolen Company, is making an investigation of the shoe factory adjoining the Marston Mill, which was recently purchased by the American Woolen Company. This is said to be preliminary to deciding upon the equipment to be installed in the building.

TO MILL OWNERS AND SUPERINTENDENTS.

ONE HUNDRED MILLION DOLLARS LOSS is caused, each year, in the United States, by Rats.

IF DANYSZ VIRUS WAS USED generally this loss would be reduced to a minimum as it offers the only logical and scientific method for the destruction of Rats and Mice.

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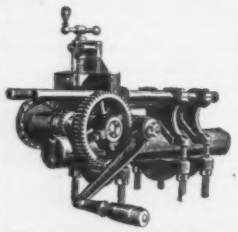
BURR KEYSEATERS



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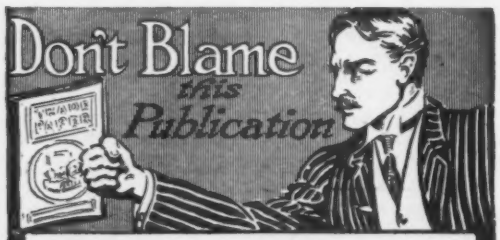

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1842 Germantown Ave., Philadelphia, Pa.

MILL NEWS

Maryland, Elkton. W. S. Deibert and Elmore Deibert are organizing a $60,000 company to build and operate a weaving plant. W. S. Deibert heads the concern manufacturing couch covers and other tapestry goods here on 25 looms under the name of W. S. Deibert Company.

Massachusetts, Boston. The Boston Felt Mfg. Company, Inc., has been organized with capital stock of $300,000 to succeed the concern of the same name located at 112 Beach St. There will be some changes in the concern. This company has its goods made on contract.

Massachusetts, Collinsville. A gradually increasing force of hands is being employed at the Beaver Brook Mills of the American Woolen Company. This mill is now on blankets.

Massachusetts, Fall River. The cylinder of a slasher in the Seaconnet Mills exploded, damaging the machine and breaking a large number of windows. Repairs will be made at once.

Massachusetts, Lawrence. Damages sustained by the Pacific Mills, the Farwell Bleachery, and the Essex Company by the seizure of real estate for the new central bridge is to be appraised by an expert to be engaged by the Central Bridge Commission and an effort is to be made to reach an adjustment out of court.

Massachusetts, Lowell. The bursting of a slasher cylinder in the Massachusetts Cotton Mills blew out a portion of the wall and broke a large number of windows besides damaging two slashers. No one was injured. The trouble was caused by a defective reducing valve.

Massachusetts, New Bedford. The Butler Mill now has 1,500 broad and 550 narrow looms weaving fine cotton goods in plain and fancies.

Massachusetts, North Andover. Sutton's Mills are running night and day to keep up with orders on hand.

Massachusetts, Pittsfield. The James & E. H. Wilson Company has resumed night operations in some departments. The Russell Mfg. Company, which has been running only four days a week, has started on full time. Several departments of the Pontoosuc Woolen Mfg. Company are working overtime.

Massachusetts, Rockland. An increase has been made in the capital stock of the Rockland Webbing Company to $75,000. There is no change in the management. Chester A. Woodward is president and George A. Woodward, treasurer and general manager.

Massachusetts, Stoughton. It is reported that a small knitting company for the manufacture of sweaters has recently been organized here. G. C. Irish is one of the men mentioned as interested. We would recommend builders of this kind of machinery to send catalogues and other information regarding their products.

Rhode Island, Washington. A night and day schedule is in force at the Livingston Worsted Company, manufacturers of fancy worsteds on 96 broad looms.

*Louisiana, New Orleans. It seems probable that a new knitting factory is to be established in New Orleans, although the Claremont Knitting Company of Brooklyn, whose name was connected with the project, deny that they are interested. Space has been secured at Iberville, Bienville and Chartres Sts. for manufacturing and a show room will be established in the Godchaux Bldg. in the offices of Orsher & Kronengold. N. Orsher will, according to report, be president; S. Kronengold, secretary and treasurer; and A. Radlauer, manager of manufacturing. A charter was recently secured under the name of the O. K. Knitting Mills with capital stock of $25.000.

*Rhode Island, Providence. The work on the addition to No. 1 Mill of the Atlantic Mills is progressing and the outside work is about finished. Part of No. 1 Mill is running overtime.

Theodore Martin Boettger, a retired silk merchant, who was for a number of years prominently identified with the silk industry in Germany, died at the Great Northern Hotel, New York City, at the age of 58 years. He was at one time connected with a silk commission house known as Boettger & Hainze Co., of New York City and was also identified with the United Piece Dye Works of Lodi, N. J.

Eliphalet Perkins Emery, formerly superintendent of the Durfee Mills, Fall River, Mass., but who resigned his position there a number of years ago on account of his health, died at Redlands, Cal., at the age of 85 years. He was formerly connected with a number of mills in Fall River, Mass.

Connecticut, Norwich. The Ardmore Woolen Mills Company has been incorporated with authorized capital stock of $30,000, of which $1,000 has been paid in. The incorporators are Gilbert L. Hewitt, William F. Hill and Charles V. James, all of Norwich.

Delaware, Wilmington. It is reported the Way Muffler Company of Philadelphia will move its plant to Wilmington. If labor conditions are satisfactory a large plant may be established here.

*Georgia, Cedartown. S. S. Evans, treasurer and general manager of the Cedartown Cotton & Export Company is interested in the plan to establish a 15,000-spindle cotton yarn mill in the buildings formerly occupied by the Cedartown Knitting Company.

Massachusetts, Holyoke. At the annual meeting of the Farr Alpaca Company it was voted to increase the capital stock from $2,400,000 to $7,200,000, two new shares to be given stockholders for every share held. The new capitalization much more fairly represents the real value of the company's investment. It was decided further to adopt a system of profit sharing for all the employes, paying a wage dividend to those employes that have been with the company a year and continuing in the company's service throughout the twelve months of the year. They propose to pay on every $100 of wages earned a dividend at the same rate that is paid a shareholder upon a share of stock The Farr Alpaca Company manufactures cotton warp lustre worsted and mohair linings and dress goods.

Steel Heddle Mfg. Co.

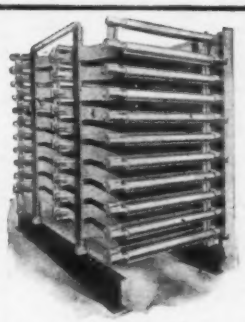
WORLD'S LEADING MANUFACTURERS OF

Flat Steel Heddles and Frames

Drop Wires and Heddles — Doup Heddles
Reed Wire — Duplex Heddles

Specialists in Metal Punching

2110-18 West Allegheny Avenue
Philadelphia, Pa.



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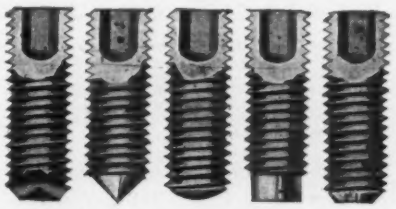
is recognized as the most modern and efficient drier on the market.

It is used by the leading finishers because it opeates at the highest speeds and at low cost. It saves steam, power and space. Let us tell you more about it.

Cell Drier Machine Co.
TAUNTON, - MASS.

Don't Use Projecting Set Screws Anywhere



Besides a large line of regular sizes, we make to order promptly, Allen Safety Set Screws of any desired length, point, or thread.

Send for Circular No. 6 and sample screw

The Allen Manufacturing Company
Hartford, Conn.
Canadian Factory, St. Johns, P. Q., Canada

TEXTILE BOOKS

THE following list contains the titles of some of the textile books which we recommend. We carry these in stock for prompt delivery. Our full descriptive catalog, giving lists of practically all textile books published in the English language, with a brief synopsis of contents, will be mailed free.

General Subjects

Advanced Textile Design, *Watson*	$4 00
Art of Soap Making, *Watt*	3 00
Calculations in Yarns and Fabrics, *Bradbury*	1 25
Carpet Manufacture, *Bradbury*	3 00
Color in Woven Design, *Beaumont*	6 00
Design Texts, *Umpleby*	2 50
Drying by Means of Air and Steam, *Hausbrand*	2 00
Flax, Hemp and Jute Spinning and Twisting, *Carter*	3 00
Improved Slide Rule, *Hogg*	3 50
Introduction to Study of Textile Design, *Barker*	2 50
Jacquard Weaving and Designing, *Bell*	4 00
Manual of Weave Construction, *Kastanek*	1 00
Silk Throwing and Waste Silk Spinning, *Rayner*	2 50
Simplex Tables	50
Spinning and Twisting of Long Vegetable Fibres, *Carter*	5 00
Story of Textiles, *Walton*	3 25
Technical Testing of Yarns and Fabrics, *Herzfeld*	3 50
Textile Design, *Woodhouse and Milne*	3 25
Textile Design, *Umpleby*	3 00
Textile Design and Color, *Watson*	2 50
Textile Fibres, *Matthews*	4 00
Textile Soaps and Oils, *Hurst*	2 50
Textiles, *Barker*	2 00
Warp Preparation and Weaving, *Nelson*	3 00
Waterproofing of Fabrics, *Merrinski*	2 50
Weaving, Plain and Fancy, *Nelson*	1 25

Cotton Manufacture

Carding and Spinning, *Ivey*	$1 00
Chemistry of Tape Sizing, *Cooper*	1 50
Cotton Carding, *Lindsay*	50
Cotton Cloth Designing, *Holmes*	2 00
Cotton Combing Machines, *Thornley*	3 00
Cotton Manual, *Broadbent*	75
Cotton Mill Commercial Features, *Tompkins*	5 00
Cotton Mill Machinery and Calculations, *Parker*	1 50
Cotton Spinning, *Hedrick*	3 00
Cotton Spinning (3 vols.), *Taggart*	7 50
Cotton Spinning, (3 vols.), *Thornley*	6 50
Cotton Waste, *Thornley*	3 00
Humidity in Cotton Spinning, *Dobson*	1 50
Loomfixing and Weaving, *Ivey*	1 25
Mule Spinning, *Thornley*	3 00
Plain Series of Cotton Spinning Calculations, *Cook*	1 00
Practical Cotton Calculations, *Whitworth*	1 00
Self-Acting Mules, *Thornley*	3 00
Structure of the Cotton Fibre, *Bowman*	3 00
Students' Cotton Spinning, *Nasmith*	3 00

Woolen and Worsted Manufacture

Cone Drawing, *Buckley*	$ 50
Faults in the Manufacture of Woolen Goods and their Prevention, *Reiser*	2 50
Finishing of Textile Fabrics, *Beaumont*	4 00
How to Make a Woolen Mill Pay, *Mackie*	2 00
Manual of Cloth Finishing	6 50
Practice in Finishing Woolens and Worsteds, *Greene*	50
Principles of Wool Combing, *Priestman*	1 50
Principles of Woolen Spinning, *Priestman*	2 50
Principles of Worsted Spinning, *Priestman*	2 50
Structure of the Wool Fibre, *Bowman*	3 00
Wool Carding and Combing, *Barker and Priestly*	1 50
Woolen and Worsted Loomfixing, *Ainley*	1 00
Woolen and Worsted Finishing, *Zimmerman*	3 00
Worsted Overlooker's Handbook, *Buckley*	50
Worsted Preparing and Spinning, *Bradbury and Buckley*	1 50

Bleaching, Dyeing, Printing, Finishing, Etc.

Aniline Black, *Noelting and Lehne*	$5 00
Bleaching and Dyeing of Vegetable Fibrous Materials, *Hubner*	5 00
Bleaching of Linen and Cotton Yarn and Fabrics, *Tailfer*	5 00
Chemistry and Practice of Finishing (2 vols.), *Bean and McCleary*	15 00
Chemistry and Practice of Sizing, *Bean and Scarisbrick*	10 00
Color Printing of Carpet Yarns, *Paterson*	3 50
Dressings and Finishings for Textile Fabrics and Their Application, *Pollyn*	3 00
Dyeing of Textile Fabrics, *Hummel*	1 75
Labratory Manual of Dyeing and Textile Chemistry, *Matthews*	3 50
Manual of Dyeing (2 vols.), *Knecht, Rawson and Loewenthal*	12 00
Mercerization (2 vols.)	7 50
Methods of Textile Chemistry, *Dannerth*	2 00
Practical Cotton Finishing	1 25
Principles and Practice of Textile Printing, *Knecht and Fothergill*	10 50
Principles of Bleaching and Finishing of Cotton, *Trotman and Thorp*	5 00
Printing of Textile Fabrics, *Rothwell*	6 00
Science of Color Mixing, *Paterson*	3 00
Silk Dyeing, Printing and Finishing, *Hurst*	2 00
Textile Chemistry and Dyeing, *Ainey*	3 00
Textile Fabrics and Their Preparation for Dyeing, *Hasluck*	1 00

Any of the above sent postage or express prepaid on receipt of price. Subscribers to the TEXTILE WORLD RECORD may buy books from us with the understanding that if not satisfactory, they may be returned within five days (postage or express paid) if in good order, and money will be refunded.

Lord & Nagle Co., Boston, Mass.

MILL NEWS

Massachusetts, Holyoke. According to rumors a new silk manufacturing company is being formed by Fred A. McLane, formerly superintendent of William Skinner & Sons, Charles L. Dunbar and Charles W. Rackliffe, of this city. There were rumors some weeks ago when Mr. McLane left the Skinner Mills that he was trying to form a silk company but it was understood the matter had been dropped.

Massachusetts, Lowell. The Union Webbing Company, manufacturing here with 17 looms, will move to Providence next August.

Massachusetts, Somerset. The Samoset Textile Company, a small concern manufacturing cords, braids, etc., will move to Fall River, probably to the Crescent Hat Factory building. It is stated that this move will be made on account of the difficulty in getting suitable help in Somerset.

Michigan, Bay City. The Amonica Knitting Works are looking for a location in another city and expect that within a week or so a decision will be reached as to where the plant will be moved. They are running to full production on men's, women's and children's hosiery. There will be no changes in the management.

Michigan, Burr Oak. The machinery has been moved from the Whitehouse Underwear Mills by the Adrian Knitting Company, who recently purchased the plant, and the buildings will not be used again for manufacturing knit goods. When the Adrian Knitting Company bought the plant it was intended to operate it as a branch, but later it was decided to move the machinery to Adrian.

*Michigan, Cheboygan. James F. Maloney, previously reported interested in establishing a woolen mill in Cheboygan, is getting all the information he can regarding equipment, lines and markets before making a move to incorporate. He would greatly appreciate information from any sources.

Mississippi, Wesson. A corporation has been formed under the name of the Wesson Operating Company to take over the Mississippi Mills, which have been idle for several years. The officers are S. Odenheimer, president; I. Marx, vice-president; John H. Hickey, secretary; E. Marx, treasurer, all of New Orleans.

New Hampshire, East Rochester. Piece work prices paid by the Cocheco Woolen Mfg. Company have been increased about 6 per cent. This change is to put the piece workers on the same basis as the day workers, whose compensation was not affected by the new 55-hour law. A small fire in one of the wool dryers in the plant was extinguished before much damage was done.

New Hampshire, Nashua. Burns & Snow, manufacturers of sweaters and other knit goods were reported in last week's issue of the advance news as being at Manchester, N. H. They should have been reported at Nashua.

New Jersey, Paterson. A charter has been granted the Textile Finishing Company with capital stock of $25,000. The incorporators are H. B. Crosby, Andrew J. Pintel and Charles Bramore.

*New Jersey, Paterson. The Macri Silk Dyeing Company, recently incorporated with capital stock of $100,000, has purchased the property at 159 Marshall St. Operations will be started shortly.

New York, Binghamton. The Cedar Cliff Silk Company, Paterson, N. J., has purchased the mill of J. & D. D. Miller & Co., manufacturers of broad silks on 94 looms.

New York, Johnstown. The local plant of the Little Falls Fibre Company is to be sold at public auction. The Little Falls Fibre Company will remove its machinery to the main plant at Little Falls.

New York, New York City. The Freeman-Sumner Company, importers and manufacturers' agents of yarns and fabrics, and the Ramie Agency, manufacturers' agents, dealers and converters of ramie yarns, will remove in April to 432 Fourth Ave.

*New York, Utica. The Climax Underwear Company, recently incorporated by John E. McLoughlin and others, is a selling organization only and will not manufacture.

North Carolina, East Durham. A charter has been granted the Louise Knitting Mills, Inc., with capital stock of $50,000 of which $13,000 has been subscribed. The men interested are J. H., K. C. and E. C. Stone and W. T. Cole.

North Carolina, Forest City. H. G. Alexander heads the project to organize a company to build a cotton mill here.

*North Carolina, High Point. A decision will be reached within the next few months by the Pickett Cotton Mills on the plan to make extensive enlargements and install 30,000 to 36,000 additional spindles. At present print cloths are manufactured on 12,000 spindles and 300 looms.

*North Carolina, Long Island. The previous report that the Long Island Cotton Mills would further develop their water power and possibly build a new mill is premature. It is not their purpose to make any extensive improvements this year.

*Ohio, Bowling Green. At a meeting of creditors of the Monarch Underwear Company, F. Whitker, the receiver, was elected trustee and was directed to dispose of the plant by sale on February 3.

*Canada, Ontario, Woodstock. It is reported that the interests in the Oxford Knitting Company, Ltd. are also interested in the new Shaw-Wood Knitting Mills, Ltd., recently incorporated with capital stock of $40,000.

Connecticut, Danbury. A voluntary wage increase of ten per cent. and a proportionate share of the profits of the company's earnings each year have been announced by the Tweedy Silk Mills, manufacturers of silk hat bands and braids.

Wyandotte Textile Soda

For Fulling Wool Underwear

Do you know by using Wyandotte Textile Soda in the fulling of heavy wool underwear that one soaping will be found amply sufficient where two soapings are required when using 48 per cent or 58 per cent soda ash? And for

Washing Wool Underwear

If Wyandotte Textile Soda is added to the rinse it will readily remove any excess soap that may have been left in the goods, bringing them out positively clean and sweet with that soft feel so much desired.

For light weight underwear this same process gives equally excellent results.

Washing Woolen Hosiery

The use of Wyandotte Textile Soda for washing wool and worsted hosiery after dyeing, thoroughly removes all surplus dye and does not strip the colors, but rather it brings the colors out bright and clear, imparting a soft, natural feel to the hose.

For Preparing Bleach

Wyandotte Textile Soda used with chloride of lime gives a superior bleach and one from which all lime and insoluble matter is precipitated, leaving a soft, clear liquor. It also stimulates the action of the bleach and makes available a greater amount of bleach from the same quantity of chloride of lime. Then, too, this bleach will bleach absolutely white, and the goods will not turn yellow.

Order from your supply house or write us for further information.

The J. B. Ford Co., Sole Mfrs., Wyandotte, Mich.

This Soda has been awarded the highest prize wherever exhibited

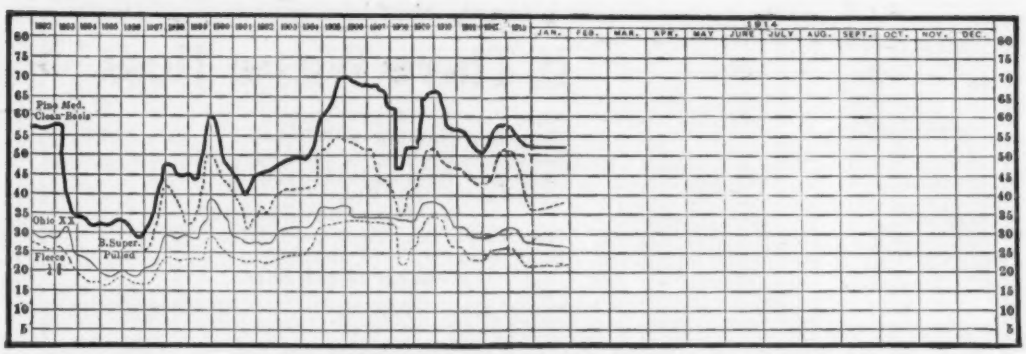


CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

THE WOOL MARKET

The market for wool is firm both in this country and abroad. There has been no material break in prices in the United States since the coming of the free wool tariff. This shows that the effect of the new rates had been discounted before they went into effect. The world's conditions of supply and demand are controlling the prices of raw material, the domestic demand being but a minor factor in the situation. This places American mills in a difficult position, as they are called upon to market their goods at decidedly lower prices in spite of the continued high cost of the raw material. The situation in the wool market has led some of the leading manufacturers to advance prices for their products from the opening values. Stocks of wool are low and prices very firm. The coming of the new clip on the market will undoubtedly tend to ease the situation, but whether this will be offset by other factors time alone can determine.

Following is the report received from one of the leading wool dealers in South America regarding the wool market in that country:

"Buyers in the Argentines have bought 190,000 bales for export to date. Uruguay has bought 75,000 bales for export. The strength of the market continues. The buying power is general and unusually strong. The greater interest seems to be on the part of the French. The offerings of good wools are small. The offerings are only moderate not only in merinos but in crossbreds. In Bahia Blanca the season is practically ended. The Argentine season will close early. The total Argentine clip amounts to 300,000 bales; the Uruguay clip, 110,000 bales."

MILL NEWS

*Pennsylvania, Philadelphia. The Fred. Lord Co., recently mentioned as equipping a plant at Leverington Ave. and High Sts., Manayunk, will incorporate the business and operate 4 sets and 450 mule spindles on carpet and waste yarns, carpet ravellings and railroad waste.

*Washington, Spokane. The proposed woolen mill company which is being organized by Gordon C. Corbaley, secretary of the Spokane Chamber of Commerce, to take over a small woolen mill in the middle West, has been chartered with capital stock of $30,000 under the name of the Spokane Woolen Mills.

LOGWOOD BLACKS
FASTNESS TO LIGHT

Do you realize that the fastness to light of the rich Logwood Blacks is absolutely satisfactory?

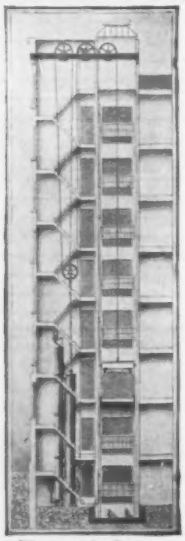
Many misconceptions have prevailed in the past decade or two relative to this point. Faulty dyeing methods are to blame for the mistake.

Properly dyed Logwood Blacks are of excellent fastness to light.

AMERICAN DYEWOOD COMPANY
NEW YORK PHILADELPHIA BOSTON HAMILTON, ONT.

Direct Acting

Double Geared



Elevator in Large Soap Factory in Jersey City

If There Was a Hoss

That Cost Nothing for Keep,
That Cost Nothing for Harness,
That Cost Nothing for Shoeing,
That Cost Nothing for Doctoring,
That Never Grew Old,
Would You Buy The Nag?

(Yes, William Henry, or an Automobile.)
Well, then, you are just the fellow to

Hook 'er to the Biler.

For this is just exactly what we guarantee in this wonderful elevator. And over 1000 of the best plants all over the land say "AMEN" to what we promise you.

1—**An Elevator that Costs Virtually Nothing to Run.** The steam used being too trifling to consider.

2—**Fool Proof.** Only a sledge hammer in the hands of the 'Fool" can put it out of running.

3—**No Repairs.** This is the hardest thing to believe, but when you take it up with us we prove it.

4—**Always Goes.** The only thing that puts a Ridgway elevator out of business is the biler bustin'.

5—**Goes when the Engine is Shut Down.** And Old Jim the engineer has banked up and gone home.

6—**AND NO PAY UNTIL IT MAKES GOOD.**

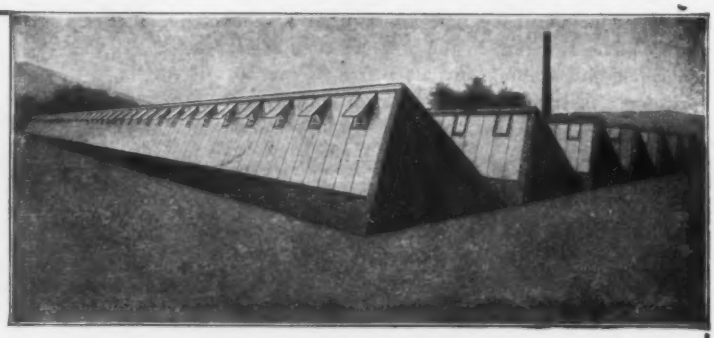
When this thing gets into your head you will be quick enough to

"Hook 'er to the Biler"

CRAIG RIDGWAY & SON CO., Coatesvile, Pa.

ELEVATOR MAKERS TO FOLKS WHO KNOW

Ventilation Results At a Low Cost



Don't you often stop at FIRST COST and forget the bigger item of the future MAINTENANCE.

Don't you occasionally have trouble with a skylight leaking or giving out altogether or a window opening device getting cranky or busting up. This is where the MATERIAL reference comes in.

And now for RESULTS.

Anti-Pluvius puttyless skylights and Straight-Push and Lovell sash operators are doing for others highly satisfactory service without more than ordinary attention, this in our understanding of results. Specializing is skylights and sash openers with trade names

ANTI-PLUVIUS
(Trade Mark)
Puttyless Skylights

that have a factory and organization behind them, we aim to provide what will obtain the maximum returns for the expenditure. Drouvé stands for quality and another way to spell this is RESULTS.

The G. DROUVÉ CO., Bridgeport, Conn.

180 N. Dearborn Street, Chicago, Ill.

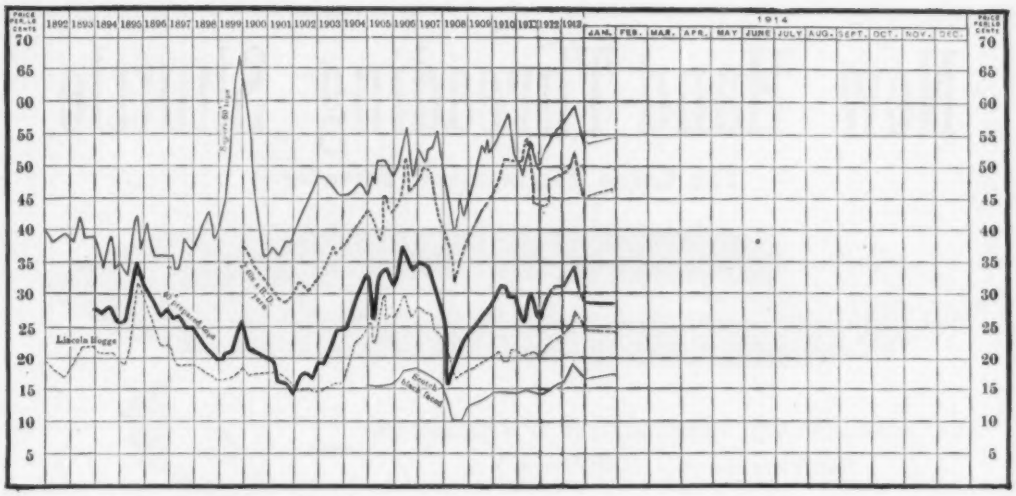


CHART SHOWING COURSE OF PRICES FOR WOOL, TOPS, AND WORSTED YARN AT BRADFORD, ENGLAND

THE BRADFORD MARKET

Bradford, Eng., Jan. 26, 1914.

Prices have hardened since the year end, after fair quantities of material had changed hands at low rates. They are maintained as a protective measure by men who have made large losses upon the depreciation of their purchases and as yet there is not light enough to know whether it is wiser to buy or to sell. Consumers decline to change their hand-to-mouth tactics, believing that nothing is to be gained by speculation at the existing rates. Users of merino express fears of a possible fall in June unless by that time the improvement in trade upon which French buyers have been speculating has materialized.

Neither in merino nor in crossbred are statistical reports of a shortage of supply making any serious impression on buyers' minds. A marked improvement must take place on the Continent before the Bradford spinners can hope for satisfactory trade in crossbred yarns.

A considerable stock of plain worsted fabrics has now accumulated upon makers' hands and manufacturers would take lower prices to keep the looms going, but salesmen do not see their way to a larger turnover as a result of that course. The stock of gabardine cloth is also believed to be large. In the home market prospects for the carded woolen mills are brighter, but 1914 does not promise to be a profitable year. High prices for wool, poor prices for goods and a dragging demand are the expectation.

MILL NEWS

*Connecticut, Mystic. Machinery has been installed in the new brick addition to the plant of the Mystic Woolen Company, the plant closing for a few days to facilitate the rearrangement. The addition took the place of a frame building in which wet finishing and dyeing were carried on. It also gives extra floor space for the weaving department. Fancy cassimeres, unions and flannels are manufactured.

Maine, Corinna. During the past few months the Corinna Mfg. Company has installed six new looms, 1 new 360-spindle mule, and a double acting napper. This is a new concern which built a mill here about two years ago to manufacture cotton warp sackings. J. H. Winchester is president and J. E. Gray, treasurer.

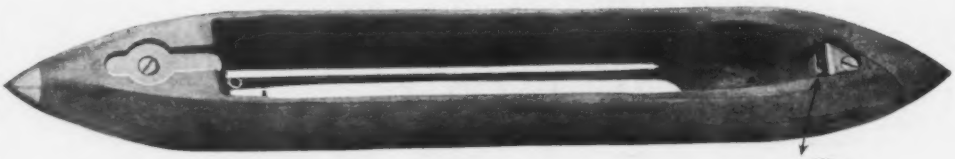
Maine, Springvale. A large addition is to be built to the plant of the Springvale Spinning Company and a weaving department will be added. Heretofore the concern has manufactured worsted yarns only. Hugh E. Gile has resigned as general manager and is succeeded by William H. Hill, formerly superintendent of the Minerva Mill department of the Goodall Worsted Company.

*Minnesota, Fergus Falls. The Fergus Falls Knitting Works, which it was reported have taken over the custom woolen mill formerly operated by J. G. Durrell, will operate this plant on woolen yarns, batting and rolls. The mill is being enlarged. This will give the knitting works a yarn department and a raw stock dyeing department.

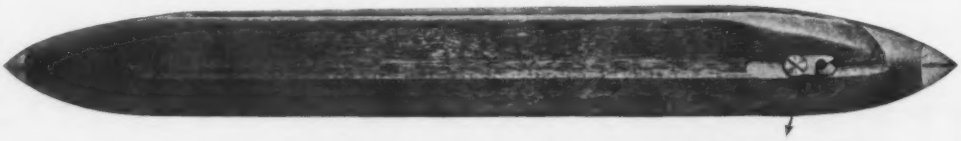
Pennsylvania, Philadelphia. The Windsor Manufacturing Co., 4060 Orchard St., operating 36 broad looms on worsted men's wear and dress goods, are arranging for the taking over of another floor in the building where they are located and installing a number of additional looms to enable them to take care of additional business which is coming in steadily.

New Hand-Threading Shuttle

The Caron Patent Hand Threader



This "THROAT PLATE" (slightly enlarged) is so designed that the Yarn *cannot "Balloon"*



This "SIDE EYE" (slightly enlarged), made in two parts, *prevents unthreading.*

The Simplest and Most Quickly Threaded Shuttle Made

It can be filled with the finest silk or the coarsest filling—will neither *unthread* nor "*balloon*"—lint that accumulates is easily removed—felt can be inserted for tension purposes—and being a hand-threading shuttle, it is sanitary.

This shuttle is entirely different from all others. It has been severely tested for a year by large mills and is the most effective hand threader on the market.

Trial orders solicited—Satisfaction guaranteed

Paper Cop Tubes Cones and Shells

Send your samples and we will quote prices on any lot desired

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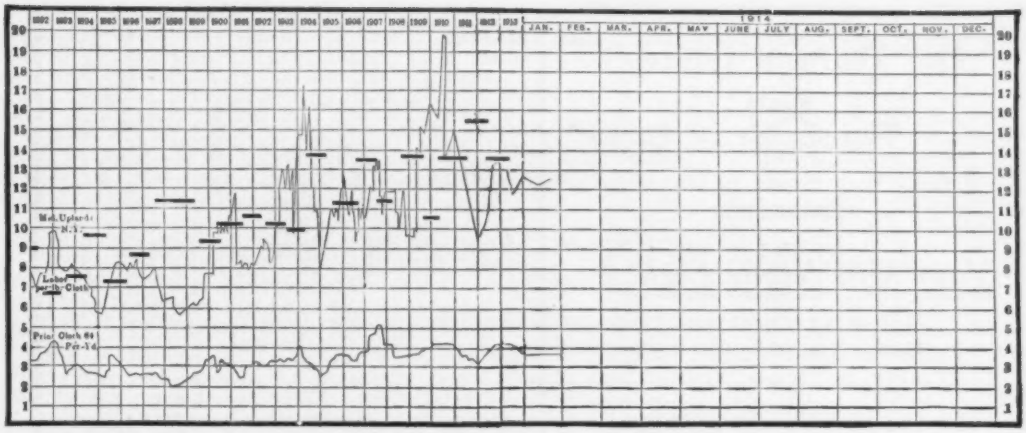

CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE.
The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.

THE COTTON MARKET

The slight advance in the price of cotton has been brought about by a number of influences that have outweighed the effect of what is an unquestionably abundant supply. The ease in the financial situation has brought with it an improvement in trade here and abroad. The mills have bought freely and a better tone has been in evidence throughout the raw material and goods markets. The large supply is indicated by 13,589,171 bales ginned up to January 15, as compared with 14,515,799 bales in 1912 and 11,253,147 bales in 1911. The movement into sight from September 1 to January 23 is reported by the "Chronicle" for a series of years as follows:

Year	Bales
1913-14, Jan. 23	10,462,173
1912-13, Jan. 24	10,190,525
1911-12, Jan. 26	10,865,935
1910-11, Jan. 27	9,266,237
1909-10, Jan. 28	7,993,569
1908-09, Jan. 29	9,946,931

The world's visible supply on January 23 is estimated by the same authority at 6,235,575 bales, as compared with 6,162,786 bales on the corresponding date in 1913, 5,884,686 bales in 1912, and 5,334,998 bales in 1911.

Leading grades of Egyptian cotton are quoted as follows by Richards, Atkinson & Haserick:

S. E. P.	22
O. R. D.	21⅛
T. I. Z.	20¼
A. D. E.	19⅞
M. A. H.	18

MILL NEWS.

*New Jersey, Cedarville. The Bell Cotton Fabric Company, a concern organized about a year ago to manufacture Terry cloth, has built a mill at Cedarville and began manufacturing January 1. Lines of Turkish towels and Terry cloth novelties are manufactured on 24 looms and 4 sewing machines, operating by water and electric power. The product is sold by F. Tausend Commission Company, New York. It was the original intention of the Bell Cotton Fabric Company to locate at Newport and it is probable that in the near future a branch of the Cedarville mill will be located at Newport. The capital stock of the company is $50,000. Robert E. Bell is president, superintendent and buyer.

*North Carolina, Greenville. Early this month the contract will be awarded for the construction of the mill for the new Greenville Cotton Mills, Inc. It is expected the plant will be in operation about July 1. The mill will be 280 by 80 feet, of brick construction, with separate boiler and engine room, and will have 5,200 ring spindles, a 200 h. p. steam plant, etc., for manufacturing cotton yarns. R. C. Biberstein of Charlotte is the architect-engineer. W. H. Norris is manager and buyer.

WEIMAR BROS. MANUFACTURERS OF Cotton Mercerized Tapes
SPOOL TAPES, BINDINGS AND NARROW FABRICS FOR UNDERWEAR AND OTHER TRADES
Phone Connections. Works, 2046-48 Amber Street, PHILADELPHIA, PA.

"The Whitest White
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Your Mill Needs Light

The best and least expensive light in the world is daylight,—the light from the sun. Use it. Get the most of it. Let the walls reflect it. It means health and efficient workmen.

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DAY LITE

Mill White

This is the mill white that will not crack, scale or turn yellow,—the economical mill white of great covering capacity. It is made by experts who have subjected it to the severest possible tests both in the laboratory and on the walls of mills. Let us send you our free booklet and full information.

The Glidden Varnish Co.

CLEVELAND, OHIO

Factories: Cleveland, Ohio Toronto, Canada
Branch Warehouses: New York Chicago
London

MILL NEWS

*North Carolina, Valdese. A. M. Kistler has been elected president of the new Valdese Mfg. Company; John Garrou, vice-president; Francis Garrou, secretary and treasurer. These men with S. R. Collett, John Sibet and W. C. Ervin are the directors. The authorized capital stock of this company is $125,000, $50,000 has been paid in, and a 3,000-spindle hosiery yarn mill is to be built and operated under the management of S. V. Upchurch. The contract has been awarded for a brick mill, 260 by 60 feet. The Messrs. Garrou are connected with the Waldensian Hosiery Mills of this place. Messrs. Ervin and Upchurch are president and superintendent respectively of the Alpine Cotton Mills at Morganton.

*Georgia, Fitzgerald. It is reported that work has been started on the proposed addition to the Fitzgerald Cotton Mills. As noted in the previous report, this enlargement is to provide space for 100 new looms, doubling the weaving equipment.

New Hampshire, Somersworth. The work of installing new spinning frames in the plant of the Great Falls Mfg. Company has been completed.

North Carolina, Concord. The management of the Brown Mfg. Company has decided to add 6,000 spindles and this equipment will be installed in the present building, which has ample capacity to accommodate the additional machinery.

*North Carolina, Gastonia. Good progress is being made on the addition under construction for the Ozark Cotton Mills. Ten thousand spindles are to be added with preparatory equipment doubling the output of carded and combed yarns.

North Carolina, Gastonia. Work on the foundation for the addition to the plant of the Dunn Mfg. Company has been started. When this addition is completed the equipment will be increased from 6,400 spindles to 10,000 spindles. R. C. Biberstein, of Charlotte, is the architect-engineer.

North Carolina, Hickory. Orders have been placed by the A. A. Shuford Mill Company for 1200 additional spindles and preparatory equipment. A number of humidifiers also are being installed. The plant is being operated day and night on cotton yarns.

*North Carolina, King's Mountain. It is reported the Cora Cotton Mills will make a further addition to the equipment, installing in all 5,000 new spindles.

North Carolina, Lumberton. Two thousand additional spindles have been ordered by the Jennings Cotton Mills, Inc., and will be installed before the end of February. This will give a total equipment of 12,000 spindles and is the third increase made in the past two years. Combed peeler hosiery yarns, 12s to 30s, and carded yarns in solid colors, 10s to 20s, are manufactured. The capital stock is $275,000. H. B. Jennings is president and treasurer; A. E. White, vice-president; and F. P. Gray, secretary and assistant treasurer.

North Carolina, Maiden. New lappers have been ordered by the Maiden Cotton Mills to replace old equipment.

A Few Spaces Open

A VERY FEW

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Dyers of Colors Fast to

SUN AND BLEACHING

Aberfoyle

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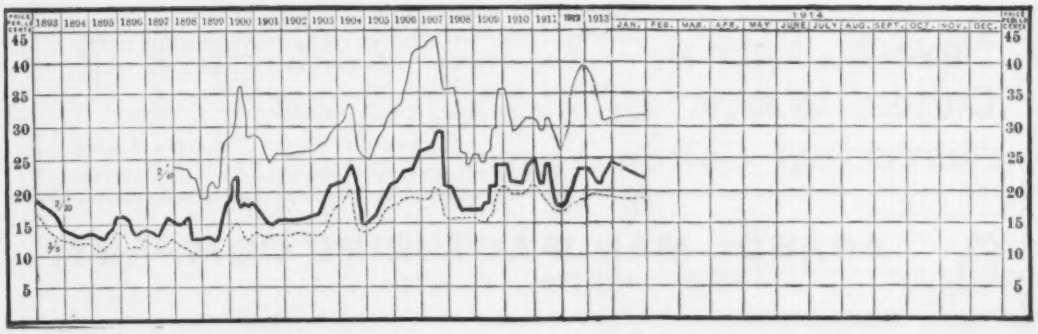
Yarn Department



GRAPHIC CHART SHOWING RANGE IN THE PRICE OF COTTON YARN TO DATE.

THE COTTON YARN MARKET

The cotton yarn market of today is much stronger than it has been for some time past. Prices have advanced on an average about one cent per pound, especially upon speculative sizes such as 2/20s, 2/30s and 2/40s warps. The early part of the month some of the commission houses evidently believed there was to be an easing up in prices and business was booked in liberal quantities and at considerable less than spinners' prices. Whether these were short sales upon which the merchant eliminated his commission is of course not known, but apparently the market has been over sold on a good many numbers. Spinners have held remarkably firm to their prices during the slackness in the demand and have since then advanced their quotations to higher figures, stopping the sales at low prices and advancing the price to the manufacturers.

Manufacturers of men's wear complain that they are not receiving the business they should at this time and are not active buyers. Upholstery weavers also complain that business is only fair in their lines. Manufacturers of tapes are doing a good business on lower priced goods, but business on the finer tapes is not so good, as they seem to be finding difficulty in competing with the imported lines. Dress goods, especially novelties, are selling well. Terry goods of all kinds are in excellent demand, while carpets and rugs are running slow.

Eastern Cops

6s	20¼
8s	20¼
10s	22¾
14s	23¾
16s	24¼
18s	24¾
20s	25¼
22s	25¾
24s	26¼
26s	26¾
30s	27¾
34s	30
36s	31
40s	32½

On cones, ¾c. more up to 14s; 1c. more from 15s to 22s; 1½c. from 23s to 35s, and 2c. above that.

Eastern Two-Ply Skeins, Carded Peeler

12s	24
14s	24½
18s	25½
20s	26
24s	27½
26s	28½
30s	29½
36s	37
40s	39
45s	43
50s	46
55s	47½
60s	52½

Eastern Two-Ply Warps, Carded Peeler

2/30s	30
2/36s	37
2/40s	39
2/45s	43
2/50s	46
2/60s	54

THE PHILADELPHIA MARKET

7s and coarser	21
8s and 9s	21¼
10s	21½
12s	22
14s	22½-23
16s	23-23½

THE J. R. MONTGOMERY CO.

Windsor Locks, - Conn.

MANUFACTURERS OF

Novelty Yarns — Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.

Cotton Warps — on Beams, Jack Spools, Tubes and Cones. In Fancy Twist, Colors and Printed.

Mercerized Cotton Yarns — Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

ARABOL MANUFACTURING COMPANY,

100 William Street New York.

Sizing, Stiffening, Softening and Finishing Compounds, Glues, Gums, Dextrines, Starches, China Clay, Bone Size and Grease, Soap, Tallow, Weighteners.

EVERYTHING IN SIZINGS, Etc. SAMPLES MATCHED. HIGH GRADE GOODS.

MONUMENT MILLS, HOUSATONIC, MASS.

HIGH GRADE COTTON YARNS White, Colors, Bleached

On Beams, Jack-Spools, Cones, Skeins and Chain Warps

FAST-BLACKS & COLORS | For Woolen Mills a Specialty | WE SELL DIRECT

C. MOORE & CO.

Manufacturers of

Twines, Threads and Yarns

Jacquard Harness Twines of all kinds on hand and made to order

S. W. Cor. Fifth and Market Sts., Phila.

JOHN F. STREET & CO.

Cotton Yarns

PROVIDENCE, R. I.

Providence, Chicago, Philadelphia, New York

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COMMISSION MERCHANTS

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YARNS

Tram, THROWN SILK, Organzine.
ARTIFICIAL OR WOOD SILK.

Plain, Gassed, Mercerized, Prepared and other Cotton Yarns. Polished and Glazed Threads and Yarns. Mohair and Worsted, Tinsel and Turkey Red Yarns.

Best Quality Harness Twine

109 GREENE STREET, NEW YORK
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HIGH GRADE **PRESS PAPERS** FOR SILK, WOOLEN AND KNIT GOODS FINISHING

ALSO Jacquard Cards AND Specialties

THE MERWIN PAPER COMPANY

MILLS: RAINBOW, CONN.-HARTFORD, CONN.

18s	24
20s	24½
22s	25
24s	25½-26
26s	26
30s	27
40s	33
50s	39

Southern high grade mule yarns:—

Cones

10s	23½
12s	24
14s	24½
16s	25
18s	25½
20s and 22s	26½
24s	27

Southern frame yarn, lower grades:—

6s and 8s	20½
10s	20½

Eastern cones (high grade quality):—

10s	24
12s	24½
14s	25
16s	25¾
18s	26¼
20s and 22s	26¾-27¼

Skein yarn (mostly Southern):—

4s and 8s soft	20½
10s and 12s	21½-22
14s and 20s	22½-24
22s	24½
10/2	21½
16/2	22
20/2	24
30/2	27
40/2	32
8/2	21
7/6	21

Southern warps:—

10/1	21
14/1	22
16/1	22½
20/1	23½
22/1	24½
26/1	25½
30/1	26½
8/2	21
12/2	22
14/2	22½
16/2	23
20/2	24
26/2	25½
30/2	27
40/2	32
50/2	38

MILL NEWS

*Canada, Ontario, Orangeville. John M. Dods, of the Alton Knitting Mills of Alton, Ont., who is building a new knitting factory here, will have the new plant ready for machinery in about a month. This will not affect the operation of the plant at Alton. In fact the expansion of that business necessitated the establishment of a new plant.

Canada, Ontario, Dundas. Alfred S. Parker, formerly superintendent of the Canada Wool Stock Company, has established a small plant for making knit lining and tubing and is operating 3 knitting machines, 1 sewing machine, and 1 napper, buying wool and cotton yarns. The plant of the Canada Wool Stock Company has been sold to the Montreal Blanket Company of 1600 St. Patrick St., Montreal.

New Jersey, Paterson. Morrison & Gross are moving their plant from the Todd Mill to the Strange Mill No. 5. They will add a few looms.

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RAMIE YARNS
In all numbers for
Knitting, Weaving and Laces
Manufacturers
Erste Deutsche Ramie Gesellschaft
Emmendingen, Germany
Sole Agents
PFALTZ & BAUER, Inc.
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300 PEARL STREET
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THE DEPENDABLE
GOLD STAMPS
SKETCHES AND SAMPLES ON REQUEST
MEYERCORD CO. PHILADELPHIA & CHICAGO.

PRINTING EMBOSSING DESIGNING APCO
We Can Save Your $
We specialize on bands, labels, box tops, tickets, stickers, and commercial printing for the Textile Trade and kindred industries.
Acme Print Co., Reading, Pa.

THE HALL LACE CO., Jersey City, N. J.
MANUFACTURERS OF
LACES AND INSERTIONS
in qualities, widths and designs especially adapted for trimming knitted underwear.
E. WHEELER JENKINS, SELLING AGENT
Mariner and Merchant Bldg., 3d and Chestnut Sts., PHILADELPHIA
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ORSWELL MILLS

FITCHBURG, MASS.

Capacity, 45,000 Spindles.

HIGH GRADE YARNS

From Egyptian and Peeler Cotton, Carded or Combed, in Chains and Skeins, on Balls, Beams, Spools, Cops, Cones, Tubes, Single or Twisted.

JENCKES SPINNING COMPANY

PAWTUCKET, RHODE ISLAND

COTTON YARNS

CARDED and COMBED, in Nos. 10 to 120, from PEELER EGYPTIAN and SEA ISLAND COTTONS.
MERCERIZED YARNS, IN SINGLE OR PLY, A SPECIALTY

Industrial Tape Mills Co.

Jasper and Huntingdon Sts. Phila., Pa.

Manufacturers of

NARROW FABRICS

SPOOL TAPES. STAY BINDINGS AND BRAIDS

Also Sole Manufacturers of

SAXON

New Guaranteed Non-Shrinkable Tape

Reels for Cotton WOOLEN AND WORSTED

Patented Hosiery Winders, Cop Winders and Spoolers.

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2124 to 2130 East York St., PHILADELPHIA, PA.

Knitting and Weaving YARNS

Cones, Cops, Warps, Skeins,
Single, Double, Three-Ply, etc.
Peeler, Egyptian, Mixed Colors.
Large Assortment

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The Bradley Stencil Machine

Makes stencils in half a minute, at reduced cost of 1-10 cent each. Write for catalogue and price list.

In universal use by thousands of manufacturers and shippers.

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115 and 117 Franklin St., New York

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And Linen Yarns and Threads for every purpose

Turkey Red Yarns

LARGE STOCK PROMPT DELIVERIES

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FLAX SPINNERS BELFAST, IRELAND

Linen Weaving and Knitting Yarns

LINEN THREADS OF EVERY DESCRIPTION

T. J. PORTER & SONS Large Stocks
Selling Agents, Philadelphia Quick Delivery

THE RAMIE AGENCY **RAMIE THREADS AND YARNS**

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Ramie Slivers and Rovings *Ramie Gas Mantle Threads, and Everything in Ramie*

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LINEN YARN MARKET

During the past week the demand for linen yarns has not been so strong as previously reported from the Belfast markets. Spinners, as a rule, having been considerably oversold, are not anxious to make any reductions, although it is said that orders have been accepted for fairly large amounts at a considerable reduction over previous prices. This shows there is a marked willingness on the part of spinners to fall in line with the reduction which has recently been made in raw material, so that when old contracts have been filled it is anticipated that there will be a regular decline in prices of line yarns. Tow yarns, however, do not show the same disposition to decline and prices are fairly well maintained. There is no doubt that this grade will also feel the influence of the reduction at present experienced in raw material.

The demand in American markets are fairly good for linen yarns, especially in coarse numbers. Prices have also fallen off here to some extent, while the finer grades of yarns especially prepared for this market has not met with any appreciable loss in value.

("A" Quality)

35s Lea on cones	83
50s Lea on cones	88
60s Lea on cones	93
80s Lea on cones	98
90s Lea on cones	1.08
100s Lea on cones	1.13
110s Lea on cones	1.28
120s Lea on cones	1.48

MILL NEWS

North Carolina, Winston-Salem. An order has been placed by the Arista Mills Company for 500 automatic looms to weave three harness drills. Colored chambrays and shirtings also are manufactured.

North Carolina, Salisbury. The Vance Cotton Mill will build at once a modern brick office building to take the place of the frame building now used for office purposes.

Oklahoma, Guthrie. Two large buildings formerly used as a furniture factory have been purchased by the Pioneer Cotton Mills. A strip of land between these buildings and the cotton mills will be acquired and when this deal is closed the Pioneer Cotton Mills will begin work on changes which will give much needed facilities for the enlargement of the plant and business.

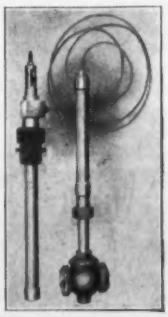
Pennsylvania, Philadelphia. Daniel Wall, Unity and Leiper Sts., Frankford, manufacturing damasks and cotton dress goods with 8 broad and 12 narrow looms, has installed 28 new narrow looms which he is operating on dress goods.

Rhode Island, Manville. Increases have been made in the equipment of the Contrexville Mfg. Company and 236 narrow looms and 12 broad looms are now operated on plushes and cotton and silk dress goods.

*South Carolina, Graniteville. The new stock recently voted by the Graniteville Mfg. Co., comprising 4,000 additional shares of par value $100, is being issued. This brings the capital stock up to $1.000,000. It is the purpose of the company to take the old looms out of the Graniteville Mill and replace them with 700 automatic looms and to double the present capacity of the Vaucluse Mill. Tracy I. Hickman, of Augusta, Ga., is president and treasurer.

*South Carolina, Greenville. Practically all the new equipment for the enlargement to the Woodside Cotton Mills, which was started some months ago, is in place. A total of 27,000 new spindles and 678 new looms, besides a large amount of electric power apparatus, has been installed, representing an investment of approximately half a million dollars which has been expended in the past year.

*South Carolina, Union. Work is about completed on the 4-story and basement addition, 370 by 130 feet, to the Monarch Cotton Mills. The equipment will include 20,000 spindles and 500 looms to be driven by electric power obtained from a steam turbine of 1500 kilowatt. Some machinery is now being installed and they expect to complete the installation in about two months.



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FOR TANK, DYE BATH AND ROOM REGULATION

No compressed air
No flat diaphragms
No electricity
No gas expansion
No metal expansion

This Temperature Regulator can be used for the regulation of temperature in dye tubs, to maintain them at the proper boiling temperature.

The Sarco is constructed on a new principle and supplies its own motive power. It is cheaper to install and costs nothing to operate.

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BOSTON MASS. BRADFORD ENG.
RICHARDS, ATKINSON & HASERICK
IMPORTERS
TEXTILE MACHINERY
MILL SUPPLIES
EGYPTIAN COTTON
PHILADELPHIA OFFICE "THE ARCADE"

A. G. THURSTON & SON
Manufacturers of
Fluted Rolls, Pressers for Flyers
AND GENERAL MACHINERY
Specialties made of Reneckring, Refluting, Filing and Honing of all kinds of Rolls. Flyers Repaired and Fitted with any desired Style of Pressers, Spindles Straightened, Restepped and Retopped.
BOX 528, FALL RIVER, MASS.

Lowell Crayons Meet the requirements of any cotton, woolen or worsted mill.
May we send samples? 15 colors and white
LOWELL CRAYON CO. Original Manufacturers LOWELL, MASS.
TRADE MARK ON EVERY BOX

S O A P S HIGH GRADE SOAPS
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J. O. Draper Co. Est. 1860 Pawtucket, R. I.

Established 1796

Special shaped carbon, black diamond, pointed tools for turning paper, rag, corn husk and cotton calender rolls, hard rubber, fibre, etc. Manufactured by
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Established 1844.
BENJ. BUCKLEY'S SON,
(WM. J. BUCKLEY) *Gun Mill, Patterson, N. J.*
Manufacturer of all kinds of SPINDLES, FLYERS, RINGS, TUBES, CAPS, etc., for Cotton, Silk, Flax, Woolen and Worsted Machinery.
Roving Spindles and Flyers a Specialty. Light Forgings.
REPAIRING OF ALL KINDS.

Elliot Cloth Folder and Measurer
FOR PRINT WORKS GINGHAM AND COTTON MILLS BLEACHERIES' ETC., ETC'
Send for circular. Manufactured by
ELLIOTT & HALL, 54½ Hermon St., Worcester, Mass.

MILL NEWS

*Tennessee, Trenton. Changes and improvements being made in the Lovera Cotton Mills, formerly the Trenton Cotton Mills, will bring the equipment up to 7,500 ring spinning spindles and 2,900 twisting spindles. 20s, 24s and 26s single and ply skein yarns are being manufactured. R. A. Love, Gastonia, N. C., is president; and G. W. Wade is treasurer.

*North Carolina, Landis. The Corriher Mills expect to have full equipment installed within the next month. The mill has been built for several years and three or four months ago preparations were begun to install 4,000 spindles to make 24s hosiery yarns, electric power equipment, etc. C. J. Deal of the Linn Mills Co., of Landis, is president; A. Corriher, treasurer; and G. O. Lipe, superintendent.

North Carolina, Salisbury. Owing to the death of I. Littman, who headed the Littman Mills, a small cotton weaving plant here, the mill has been closed indefinitely. There are rumors that new interests have applied to take over the business.

Pennsylvania, Philadelphia. Walker & Stine, Leiper and Adams Sts., Frankford, manufacturing men's wear, dress goods and couch covers, have increased their equipment to 120 narrow looms and are also starting up an annex in the Sidebottom Mills on Franklin St. Their production is sold through New York.

Pennsylvania, Philadelphia. J. & W. Wardlaw, 1615 Foulkrod St., Frankford, who have been manufacturing a line of damasks on 64 broad looms, have discontinued these fabrics and are now manufacturing cotton dress goods with a prospect of going on to worsteds at a later date.

Pennsylvania, Philadelphia. Kelly & Lampe, located in Ripka Mills, Main and Carson Sts., are putting into condition the equipment formerly operated by Holiday & Zahn, and also installing one burr picker and a garnett machine with a view of starting up within a short time on woolen and merino yarns.

Rhode Island, Hope Valley. Increases have been made in No. 2 Mill of the Mystic Woolen Company and the equipment is now six sets of cards and 82 looms. The main office is at Mystic, Conn.

Pennsylvania, Stroudsburg. Stroudsburg manufacturers and business men are negotiating for the purchase of the woolen mill formerly operated by Thomas Kitson & Sons with a view to starting up the plant. The Kitson company shut down the mill on account of unsatisfactory labor conditions. Thomas J. Kitson will interest himself in the project to start the mill if operatives are guaranteed and will arrange for the sale of all the product the mill can turn out.

F. C. BARTON
65 Worth Street, New York
MANUFACTURERS OF
"LILY" BRAND NARROW FABRICS
WEB, TAPE, BINDINGS, ETC.

THE BIAS NARROW FABRIC CO.
F. C. BARTON, President
65 Worth Street, New York
Bias and Straight Cut Fabrics and Ribbons
Embossing and Cutting Customers Own Goods a Specialty.

MILL NEWS

New Jersey, Paterson. Nat King, Jr., has begun the manufacture of knitted silk neckties in the old Ulrich Mill on Ward St.

New York, Brooklyn. A new knitting plant has been established at 2764 Atlantic Ave. by the Liebrecht Mfg. Company, Inc., making wash cloths and knitted novelties. The capital stock of the company is $5,000. Meyer S. Liebrecht is president and treasurer, and L. O'Lena is superintendent. Mr. O'Lena was at one time part owner of the Electric Knitting Company of Cohoes, and more recently has been engaged in the manufacture of knitted novelties at Waterford, N. Y.

*North Carolina, Old Fort. The Century Knitting Mills will move from South Boston, Va., to Old Fort. The organization of a new company known as the Century Knitting Mills under the laws of North Carolina, with authorized capital stock of $125,000, was recently noted. It was originally understood that a branch of the South Boston plant was to be established. Business will begin with $28,000 paid in and temporary quarters will be occupied until a new mill can be erected on a site near the depot. F. A. Lukin is president, F. M. Bradley, treasurer; C. F. James, vice-president and manager. Messrs. Lukin and James attend to the buying.

*Pennsylvania, Newmanstown. Manufacturing will be started January 25 in the new knitting plant being established here under the name of the Newmanstown Hosiery Mills. Twenty-six knitting machines are being installed to manufacture 180-needle men's hosiery. Steam power will be used. The men interested are Edward D. Rubright and Robert Grimes, of Shoemakersville, and C. A. Bolich.

Pennsylvania, Philadelphia. The Beaver Knitting Company, which will start in the manufacture of sweater coats, etc., has been incorporated. The plant will be located in the building at the N. W. corner of E. Neff and E. Thompson Sts.

Pennsylvania, Philadelphia. James Weston has started up four knitting frames at 4960 Sheldon St., Germantown, on which he is manufacturing a line of surgical hosiery, abdominal supporters, knee caps, etc., as well as knitted fabrics for the corset trade. He sells direct.

Pennsylvania, Philadelphia. The Pigeon Knitting Co. is starting up at 746 E. Westmoreland St. in the manufacture of fine gauge seamless hosiery, 220-needle goods, which they will sell direct. They use mercerized yarns.

*Wisconsin. Milwaukee. The Milwaukee Knitting Company, recently reported incorporated with capital stock of $10,000, has equipped a plant of 10 knitting machines and 10 sewing machines for the manufacture of high grade sweater coats at 173 Broadway. They are using 2/6s, 2/10s, 3/15s, and 2/20s worsted, and 2/20s woolen yarns. Electric power is used. J. B. Sattler, president of the company, and Harry M. Levy, the treasurer, came to Milwaukee from Duluth, Minn. Louis E. Trewett, the superintendent and buyer, was formerly with the Great Western Knitting Company, of Milwaukee.

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Often it is "**Too Bad**"—in more ways than one—as a certain spinner remarked after taking a chance with some clothesline miscalled banding. He has gone back to **Lambeth** for keeps. No more chances for him. Final cost is the real test of economy.

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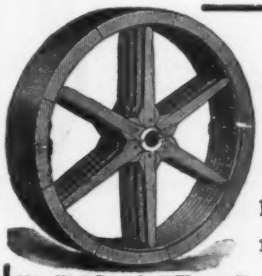
NEW BEDFORD, MASS.



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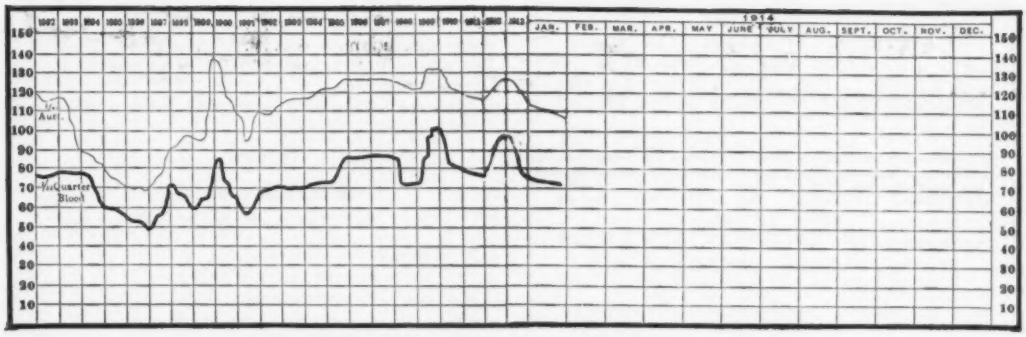

GRAPHIC CHART SHOWING RANGE IN PRICE OF WORSTED YARN.

THE WOOLEN AND WORSTED YARN MARKETS

The spinners of worsted yarns report that business is improving. The weaving end of the trade is in a much better condition than a number of the manufacturers expected or predicted on account of the tariff changes made the first of the year. Most of the weavers are now buying in a conservative manner. Most of the business being for 2/40s half blood.

Prices, it is thought in many quarters, have about reached bottom and it looks now as though there would be an advance, spinners complaining of a scarcity of certain grades of domestic wools. This in itself makes it necessary to raise prices as the wool dealers are said to have the upper hand and are practically masters of the situation, dictating prices to the consumers. This will make it necessary for the spinner to increase prices from two to three cents on practically all numbers. Some spinners have already been compelled to make these advances as they have not covered on their supply of wool.

The knitting trade, especially that branch of it making sweaters, is not in a very healthy condition at this time, although the manufacturers of the cheaper grades of sweater coats, especially those using woolen yarns, are better supplied with orders than those making the higher and finer grades. The underwear manufacturers report an exceptionally good business, especially in the West. While they have nearly all their yarn requirements placed for the next six to nine months to come, it is expected that after their contracts have been taken up they will be in the market again duplicating their orders.

BRADFORD SPUN YARN

2/16 Ingrain (black)	54
2/16 Ingrain (light grey)	55
2/16 Ingrain (white)	56
2/12 to 2/16 low common	60-62½
2/20 to 2/24 low 1/4	62½-65
2/20 to 2/25 1/4 blood	65-67½
2/26 to 2/28 1/4 blood	68½-71
2/32 1/4 blood	70
2/20 3/8 blood	70-72½
2/26 3/8 blood	72½-75
2/32 3/8 blood	75-77½
2/36 3/8 blood	80-82½
2/40 1/2 blood	87½-90
2/40 delaine	95-1.00
2/50 delaine	97½-1.00
2/40 Australian	98½-1.00
2/50 Australian	1.05-1.07½
2/60 Australian	1.12½-1.15
3/28 luster	95
3/30 and 3/32 luster	95-97½
3/36 luster	1.10-1.12½

FRENCH SPUN MERINO YARNS—FINE ONE-HALF BLOODS

Standard Grade

1/20 50/50 White Merino Cop	65
1/30 50/50 White Merino Cop	67
1/40 50/50 White Merino Cop	70
1/20 60/40 White Merino Cop	68½
1/30 60/40 White Merino Cop	70½
1/40 60/40 White Merino Cop	73½
1/20 70/30 White Merino Cop	71½
1/30 70/30 White Merino Cop	73½
1/40 70/30 White Merino Cop	77
1/20 80/20 White Merino Cop	74
1/30 80/20 White Merino Cop	76
1/40 80/20 White Merino Cop	78
Sliver and Sanitary Mixes	3c. more
Coning on 1/20	2c. more
Coning on 1/30	3c. more
Coning on 1/40	4c. more

FRENCH SPUN YARN

1/20 1/4 blood	65
1/20 high 1/4	67½
1/20 3/8	75
1/20 high 3/8	76-78
1/20 1/2 blood	82
1/30 1/2 blood	84
1/40 1/2 blood	86
1/50 delaine	92½-95
1/40 Australian	92½-95

William Whitman Co.
COMMISSION MERCHANTS
COTTON and WORSTED YARNS
BOSTON NEW YORK PHILA. CHICAGO CHARLOTTE

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MINERVA MILLS
Spinners of WORSTED YARNS
For Weaving and Knitting
In the Grey and in all colors and mixtures
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Imported Worsted Yarns
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EMPIRE MILL CRAYONS
"BEST BY TEST"
THE AMERICAN CRAYON CO.
Waltham, Mass. and Sandusky, Ohio

1/50 Australian	1.00-1.02½
1/60 Australian	1.05-1.08
1/70 Australian	1.17½-1.20

For two ply Knitting Twist add 5c. additional to above prices.

For two ply weaving yarns add 7 1/2c. additional to above prices.

KNITTING YARNS

Dyed and Bleached—Bradford System

2/7s straight 1/4 blood	72½
2 and 3 ply 10s-15s straight 1/4 blood	75
2 and 3 ply 16s-20s straight 1/4 blood	75
2 and 3 ply 20s-24s straight 1/4 blood	77½-80
2 and 3 ply 24s-28s straight 1/4 blood	80

WOOLEN AND MERINO YARNS

Spinners report that business with them is little more active with prices having a tendency to advance as the raw stock seems to be advancing from day to day. Contracts are now being filled and deliveries being made with a considerable amount of new business coming in from day to day. Some spinners report more business on their books at this time than at the same time during previous years, the orders being for 2/7 to 2/23 cut yarns.

WOOLEN AND MERINO YARNS

2/20 Light Grey Mixed	80%	20%	52-55
2/20 Light Grey Mixed	90%	10%	57½-60
2/20 Light Grey All Wool			62½
2/20 Colored All Wool			60
2/20 Bleached	80%	20%	62½-65
2/20 Bleached	90%	10%	67½-70
2/20 Bleached All Wool			70-72½
2/23 Colored All Wool			62½-65
2/23 Bleached 90/10			67½-70
2/23 Bleached All Wool			72½-75
2/25 Light Grey Mixed All Wool			80-82½
2/25 Bleached All Wool			85-87½

THE RAG AND SHODDY MARKET

There has been some improvement in the market for rags, exports showing a considerable shrinkage as compared with previous months. The exports from Boston are as follows:

November, 1913. 610,000 lbs., valued at $18,897.
December, 1912, 710,672 lbs., valued at $22,608.
December, 1913, 207,105 lbs., valued at $8,202.

The shoddy mills are turning out considerably less than the full production, orders being placed very carefully by the spinners. There is but a small demand for cotton waste. Wool waste is also quiet with a fair call for the better grades of stock. We quote as follows:

SHODDIES AND EXTRACTS

White yarn, best all wool	46-49
White knit, all wool, best fine	30-40
White, knit, No. 2	23-30
Light yarn, extra fine	35-36
New pure indigo blue	24-27

Merino

Fine light, all wool	20-22
Medium light, all wool	19½
Fine black, all wool	17-19
Fine dark, all wool, best grade	18-20
Medium dark, all wool, No. 2	13½-15½
Red knit stock, strictly all wool	20-24
Red flannel, all wool	19-22
Dark blue for hosiery, strictly all wool, No. 1	20-22
Dark blue for hosiery, not all wool, No. 2	13-15½

NEW WOOLEN RAGS

Fine merchant tailors	6-8
Choice light colors	7-8
Browns	12
Blacks	6
Blues	9
Fine dark	7-12
Medium dark	4½-5½

Serges

Black	9
Blue	10-11

Flannels

Very light	17-18
Mixed	10-11
Black	6½-7½

SOFTS AND KNIT STOCK

Soft woolens, best	5¼-6½
Old white flannels	11-14
Old red flannels	10-11
Old blue flannels	3-5
Old plaids	3½
White stockings	20-24½
Clear dark hoods	7-8
Light hood stock	13-14

MILL NEWS

Indiana, Sullivan. A corporation is being organized to take over and start up the Sullivan Woolen Mills of S. Brunger & Company. The plant has been closed since July 1, 1913. This is a small plant equipped with two sets and nine looms on which flannels, blankets and knitting yarns have been manufactured.

Pennsylvania, Philadelphia. The Sykes & Geiger Company, Frankford Ave. and Van Dyke St., Frankford, who recently equipped the one and two-story buildings at that address, formerly used as a finishing plant, with machinery for the manufacture of woolen carpet yarns, have begun manufacturing. They have equipment of two sets of cards and 600 spindles. The capital stock is $30,000. Walter G. Sykes is president, superintendent and buyer; and Warren Geiger, treasurer.

Interruption of Production

is recognized by textile mill operators as the most costly element of repairs.

Allis-Chalmers TEXTILE MOTORS

are so liberally designed and so sturdily constructed that they will operate for years without need of repairs providing they are properly supplied with oil while in service.

"Motors for all drives"

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Power and Electrical Equipments

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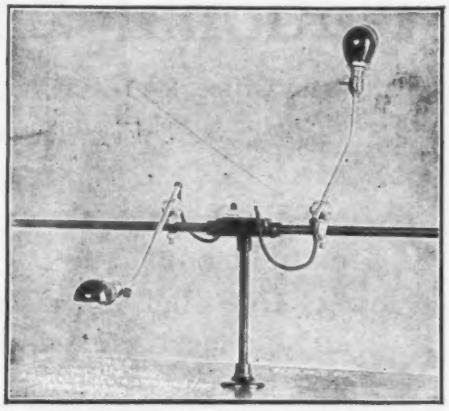
Not in the eyes to blind and distract your help but on the work—just where it is needed.



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It directs the light just where wanted. Lights of 4 c. p. can be used where 16 c. p. was formerly necessary. This change soon pays for the installation and then saves money for you.

Your own machinist or engineer can easily install both system and fixtures. Get price and descriptive literature.

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Maintaining a High Standard

For many years Cheney Brothers have supplied manufacturers with silk yarns of the very highest quality—spun and reeled, organzines and trams, doubles and singles.

Our facilities are greater than ever, and the seventy-five years of silk manufacturing experience back of

CHENEY SILK YARNS

have enabled us not only to produce the best quality of silk yarns, but to maintain a standard that all manufacturers recognize as *the* standard of the silk-yarn industry.

Your yarn needs, whatever they may be, will be promptly supplied if your order is placed with us. We make a specialty of supplying silk yarns to individual orders.

Quotations and samples on request.

Cheney Silks are of superior quality, and include practically every kind of goods made of silk—whether for dresses, millinery, decoration or upholstery, the haberdasher or manufacturer, man or woman.

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Skein Silk Dyeing of every description for every class of textile manufacture.

Hosiery Dye—Boil-off, weighting and dyeing, treated especially to meet the requirements of the hosiery and knitting trade.

Piece Dyeing and Finishing—All silk and silk mixed goods.

Printing—Surface and warp printing.

WORKS:

Paterson, N. J. Dundee Lake, N. J. Allentown, Pa. Williamsport, Pa.

THE SILK MARKET

The silk market at this writing is a strong one, with prices hardening. This can be accounted for by the shortage of the raw product, which is felt already, and the enormous consumption.

Of the crop of two hundred thousand bales in 1913 at Yokohama, at least one hundred and twenty-five thousand bales have already been shipped, leaving only seventy-five thousand bales to last until the new crop, which will not be ready before the last of July. This situation is likely to cause a further advance in prices of raw silk.

In Canton, the situation is about the same, prices having advanced 7 or 8 per cent., and very little of the raw product is to be had. Much of this silk in the Canton market is being shipped to Lyons, France, where the manufacturers are reported as being busy and the general silk prospect very bright.

In Italy and in Shanghai a shortage of raw silk also exists, and while the market is active at the present time, prices are advancing.

The manufacturers in this country are for the most part very busy, both in the broad and narrow lines. In broad silks the outlook for spring business never was more promising, and, although it is too early to predict how much silk will be worn the coming season, manufacturers in general are getting ready for a boom. As it is now, it is reported that the demand for certain lines of broad silks is so great that many manufacturers are unable to make prompt delivery.

Manufacturers of ribbons are also very busy and there seems to be an active demand for this product. From every view point in the trade at the present time the coming season looks to the manufacturers as one of the best for some time.

In the dry goods districts they report the past month as being one of the best as far as the sale of silk and silk mixed goods for some time, and the retailers are looking forward to a very active spring trade In broad silks, the printed crepe de chene with Dolly Varden effects, will be popular the coming spring, while at the present time moires, poplins and all soft finished silks are selling well and are much called for.

Many manufacturers of taffetas are making preparations, although cautiously, for a good season, believing as they do, that this product will again be popular when the spring styles are announced in both the millinery and dry goods trades.

Cotton and knitting manufacturers are still buying some raw silk, but it cannot be predicted at this time just how much of the raw product will probably be used in these lines.

To sum up the situation, it can be said with authority that the outlook for the silk industry in both this country and in Europe was never better and all in the trade believe that the coming spring

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Silk, Cotton and Mercerized Narrow Fabrics
SPOOL TAPES A SPECIALTY
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No. 167 Ward Street, Paterson, N. J.
ADDRESS ALL CORRESPONDENCE TO NEW YORK OFFICE,
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All Frames Equipped with Latest Improvements, Particularly
W. & R. Oscillating Reed Motion,
The Latter Assuring Complete Relief to Strain on Silk
GOODS FULLY INSURED BY FIRE. PROMPT SERVICE GUARANTEED.
Raw Silk Warping a Specialty.

business will exceed in volume that of previous years by a good margin.

Below are prices current:

European

Grand Extra Classical Piedmont 12/14	5.10-5.15
Extra Classical Italian 12/14 12/16	4.85-4.90
Classical Italian 13/15 24/26	4.60-4.65
Best No. 1 Italian 13/15 24/26	4.55-4.57½

60 days' basis.

Japan

Filature Kansai Extra Extra 13/15	4.30-4.35
Filature Kansai Extra 13/15	4.15-4.20
Filature Shinshu Extra 13/15	4.10-4.15
Filature Kansai Best No. 1 13/15	4.05-4.10
Filature Kansai No. 1 13/15	3.95-4.00
Filature Shinshu 13/15	3.90-3.95
Rereels No. 1 13/16	4.02½-4.05
Rereels No. 1 1/2 13/16	3.95-4.00
Rereels No. 1 1/2-2	3.90-3.95

6 months' basis.

China

Canton XXA 14/16	3.80-3.90
Canton XXB 14/16	3.65-3.75
Tsatlee Blue Dragon and Flying Horse	3.35-3.40
Tsatlee Kun Kee Mars No. 1	2.90-2.95
Tussah Filature Eight Cocoon No. 1-2	1.55-1.60

6 months' basis.

SPUN SILK

The trade is in a very flourishing condition and spinners of this product find it hard work to keep up with their orders. Much spun silk will be used the coming season and there is no likelihood of an advance in prices for some little time to come. The prices follow:

60/2	3.70
50/2	3.60
40/2	3.50
30/2	3.35
20/2	3.25
10/2	3.15

ARTIFICIAL SILK

The artificial silk manufacturers report business fair in this line, but they are still expecting a revival in the near future. Much of this product has been used heretofore in the braid industry, but owing to the present dullness in that trade, they are buying but little artificial silk. Prices remain the same as our last report:

150 Deniers First Quality European	1.95
150 Deniers Second Quality European	1.85
150 Deniers English A.,—Bleached	1.95
150 Deniers English B.,—Bleached	1.83
150 Deniers English C.,—Bleached	1.70
150 Deniers Elberfeld Raw	1.73
150 Deniers Chardonette Natural	1.85

R. W. Jacoby has severed his connection with the Scranton Lace Curtain Co., Scranton, Pa., where he served as chemical engineer, looking after supplies and processes.

SPUN SILK
YARNS FOR ALL PURPOSES
AMERICAN SILK SPINNING CO., PROVIDENCE, R.I.

MINDLIN & ROSENMAN
Importers and Manufacturers of
Our Specialty:
DYED SILK FOR THE KNITTING TRADE
on cones and tubes
RAW and THROWN SILK, ARTIFICIAL SILK
Mercerized and Cotton Yarns, Yarns and Threads
131 Mercer Street, New York
Factory and Dyehouse, Brooklyn, N. Y.

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FOREIGN AND DOMESTIC
SPUN SILK YARNS and NOILS
Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Importers of European and Asiatic Raw Silk.
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A. P. Villa & Bros.

Raw, Thrown and Dyed Silks

Silk on Quills or Beams. Hosiery Silk on Cones

Societa per la Filatura dei Cascami di Seta, Milan (Italy)
Cascami Silk Spinning Company of America

"Cascami"

Schappe, Spun Silk, Cordonnets for Sewing in Skeins—on Cops—Spools —Cones—Beams.
In Gray or Dyed.
Special attention to regularity of sizes.

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Silk Throwing and Waste Silk Spinning — *Rayner*

Deals with the preparation of yarn from the raw silk: also waste silk spinning and the utilization of waste products. For silk manufacturers or workers, or for men who use silk in connection with cotton, worsted or wool. 158 pages; 117 illustrations; cloth. **Price, $2.50 Prepaid.**

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LORD & NAGLE CO., Textile Publishers
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Eastern Silk Winding and Warping Co.

242-244 PINE STREET, PAWTUCKET, R. I.

Commission Winders and Warpers

Machines equipped with Swiss Motion
Raw Silk Warping a Specialty

SILK MILL NEWS

*New Jersey, Midland Park. The new broad silk weaving plant established here by James & George Schofield is located at 39 Godwin Ave. Forty-two broad silk looms have been installed. The plant is known as the Holt Mill.

*New Jersey, Paterson. Manufacturing space for fourteen broad looms has been rented in the Strange Mill No. 5 by S. Sholev. We recently reported Mr. Sholev would establish a small broad silk weaving plant as soon as space was secured and would manufacture under the name of the Sholev Silk Company. It has been decided to do business under the name of the Atlas Silk Company, instead of the Sholev Silk Company.

Pennsylvania, Archbald. It is understood that a mill for commission quilling will be established in Archbald by the Klots Throwing Company. Several silk throwing plants are operated in Pennsylvania, Maryland and Virginia.

*Pennsylvania, Lopez. The new branch mill to be located here by the Mason Silk Mills of Paterson will be built and equipped about June 15. The initial equipment will be 120 looms and a steam power plant. Walter W. Hemming will be superintendent.

*Connecticut, Norwich. Fifty-six looms for box loom work are to be installed in the 6,000 additional square feet of manufacturing space secured by alterations and rearrangement in the plant of the Brainerd & Armstrong Company.

*Illinois, Chicago. Oscar Heineman Co., silk manufacturers, 2701 Armitage Ave., have started to break ground for the additional factory. The addition will have floor space of about 90,000 square feet, doubling the present capacity. It will be 5 stories high and basement, connected with the present building by a tunnel under the street. Silk, floss, tram, twist, etc., are manufactured and the equipment will be increased to 55,000 spindles on the completion of the enlargement.

Massachusetts, Becket. The Becket & Berkshire Silk Company is planning to add to the equipment and will employ a larger number of hands. Sewing silk and silk and mohair braids are manufactured. If the necessary employes can be secured one whole floor which is now used for storage purposes will be filled up with machinery.

New Jersey, Paterson. Fourteen new ribbon looms have just been installed in the plant of Sweeney & Co., Inc., located in the Van Kirk Mill, instead of the smaller number previously reported. The work of moving the finishing department to the basement, where alterations are being made to adapt it for finishing purposes, is progressing. J. D. Sweeney is treasurer, agent and buyer. Silk ribbons are manufactured.

New Jersey, Paterson. Smit Bros. have taken additional space adjoining their present quarters in the Essex Mill, which was recently vacated by the Tarr Silk Company, and have added six new looms. More new looms will be added later.

New Jersey, Paterson. A small 1-story addition, 13 by 50 feet, is to be built to the plant of the Holzman Silk Mfg. Co., manufacturers of plain and fancy ribbons.

SILK MILL NEWS

New Jersey, Paterson. W. Wishnack, formerly a partner in the firm of Wishnack & Hollritt, has started a new plant with 20 looms in the Waverly Mill, under his own name.

New Jersey, Paterson. Ryan Rosendale, until January 1 superintendent for Buckner & Fischer, is installing 30 broad silk looms in the Ryewaner Mills, 5th Ave. and Wait St. Two of Mr. Rosendale's sons have an interest in the new company and the business will be conducted under the style of Rosendale & Sons. If the project is successful a large increase may be made later as there is considerable space vacant in this mill.

New Jersey, Paterson. One and perhaps two more floors are to be taken by the Julius Brandes Mfg. Company in the mill at Marshall and Dakota Sts. Probably little new machinery will be purchased, however, as they are greatly overcrowded.

New Jersey, Paterson. The Pearl Silk Company, 48 Straight St., has taken the first floor in the mill where the plant is located and will add a few looms.

New Jersey, Paterson. An addition will be built to the Todd Mill when the weather permits. When this enlargement is completed the Baker Silk Company will add a number of looms.

*New Jersey, Paterson. Platt Bros. are more than doubling their equipment. The concern, which manufactures broad silks, was located for a number of years at 93 River St., but recently secured larger space in the Barnert Mill on Dale Ave. Twenty new looms are to be added and 40 spindles, giving total equipment of 80 spindles and 34 looms.

New Jersey, Paterson. An addition is being built to the dye house of Dexter, Lambert & Company, manufacturers of broad silks.

New Jersey, West New York. The roof is being put on the addition to the plant of the E. H. Kluge Weaving Company at 19th St. and Hudson Ave. This addition is 125 feet square.

*Pennsylvania, Catasauqua. In about a month the installation of the new equipment in the addition to the plant of the Wahnetah Silk Company will be finished, giving a total of 700 looms in the plant.

Pennsylvania, Catasauqua. The Catasauqua Silk Company is adding 12 looms. Broad silks are manufactured.

*Pennsylvania, Egypt. An addition which will have space for 100 new looms is to be built in the spring by the Feldhege Silk Mfg. Company on land recently purchased. Broad silks are manufactured.

Pennsylvania, Green Lane. Additional looms are being received at the plant of the Hill Silk Mfg. Company, manufacturers of broad silks. This is a branch of the main plant at Paterson.

*Pennsylvania, Johnstown. Ten new ribbon looms with necessary auxiliary machinery comprise the increase in equipment being made by the Buser Silk Company, Inc.

If you want

Splendid Garnetted Stock

made of
Cotton, Wool or Silk,
the finest the market
affords, made by men
who are "KEEN"
after the work—who
delight in doing it right—
Then write GRAVES
for samples.

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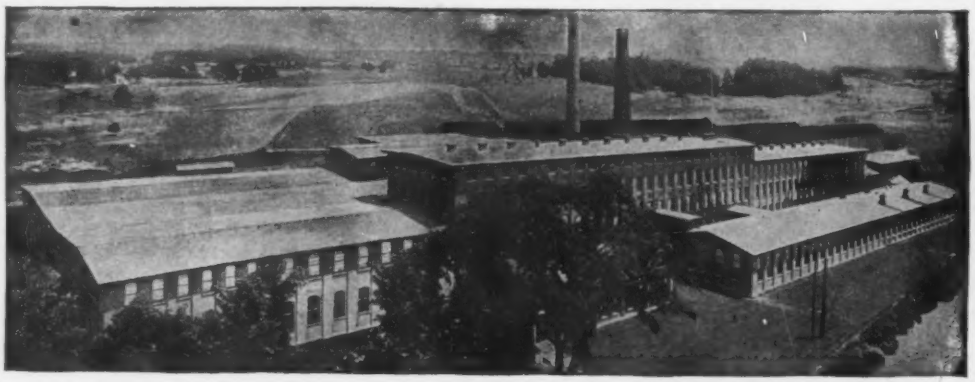
Our Automatic
Roving Can Spring

Made of fine quality spring wire adjusted to the same tension. The plate or follower is made of IXXX tin plate with rounded edges, avoiding all wear on the sides of the can. A half inch hole in the center of the plate prevents suction. The spring for satisfactory service.

Write for prices.

James Hill Mfg. Co.,
Providence, R. I.



UTICA WILLOWVALE BLEACHING CO.

Sheetings, Shirtings, Lawns, India Linons.
Everything in White Goods.
Capacity, 30 Tons Daily

JOHN MacMANUS, Manager — CHADWICKS, N. Y.

It is
Neutral
Odorless
Colorless
Transparent
Flexible
Moisture-proof

COLD WATER SIZING

Furnished in Concentrated Liquid Form. Will not sour nor Spoil
Always Ready for Use. Just Add Cold Water

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32 Union Square . . . . New York

Used on
Silk, Satin
Cotton, Wool
Lace, Braids
Straw, Hemp
and all Textile
Materials

For Perfect and Economical Results in Speck Dyeing Worsted Piece Goods, use

CRYSTAL SPECK DYE

Covers all vegetable and other specks.
Does not stain white silk threads in goods.

Worden Chemical Works
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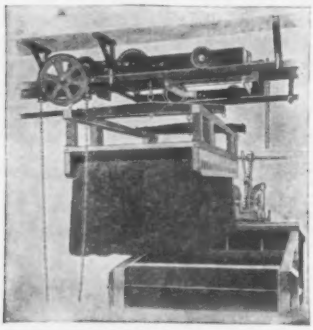
SAVOGRAN

Cleans Wool, Floors, Anything
INDIA ALKALI WORKS, - BOSTON



Dyeing and Bleaching Machines

First cost low. Repairs $10.00 per year. Output unapproached. Levelness second to none. Cost about half of other methods. Stretching, breaking and tangling of yarns unnecessary. Loftiness preserved. All who buy them buy more. Ask them. List of users on application. 600 machines in use.

Patentees and Manufacturers

HUSSONG DYEING MACHINE CO., GROVEVILLE, N. J.

FIRE, LIGHTNING, WINDSTORM.

The HOME INSURANCE COMPANY NEW YORK

Elbridge G. Snow, President

Organized 1853 MAIN OFFICES, 56 CEDAR ST.

Cash Capital, $6,000,000

ASSETS, January 1, 1914	$33,139,915.81
LIABILITIES (Except Capital)	17,066,896.12
SURPLUS AS REGARDS POLICY HOLDERS	17,873,019.69
Losses Paid Since Organization over	145,000,000.00

INDEMNITY
For Loss of
Profits
Commissions
Use and
Occupancy
on acceptable
Protected Plants
at the
Minimum Rate

IS prepared to entertain liberal lines on Sprinkler-Equipped and Modern Improved risks generally, having a special department for the consideration of such business.

OWNERS OR TENANTS may have for the asking proper advices in relation to the FIRE HAZARD and the Value of Automatic Sprinkler and other protection for the manufacturing or distributing plant. Correspondence invited by the

DEPARTMENT OF IMPROVED RISKS
56 CEDAR STREET, N. Y.

DYESTUFFS AND CHEMICALS

Acetic, 100 lbs.	2.16-2.56
Citric, domestic	38
Copperas	65-80
Oxalic	7½-8½
Sulphuric, 66°, 100 lbs.	1.00-1.25
Muriatic, 18°	1.15-1.65
Tartaric crystals	30-33

Miscellaneous Chemicals and Dyestuffs

Acetate of lime, gray, 100 lbs.	2.50-2.60
Alum, lump	1.75-1.90
ground	1.85-2.00
powdered	3.00-3.15
Aqua ammonia, 26°	2-5½
Borax	3-5
Cream tartar, crystals	23-25
Fuller's earth, powdered, ton	18-20
Glauber's salt	75-85
Potash, chlorate, crystals	8-9
powdered	9-14½
carbonate	3-6
Soda, bicarbonate	1.15-1.50
Soda, caustic, domestic, 60 per cent.	1.80-1.91
Sal., American	65½-85½
Vitriol, blue	4.76-5.00
Acetate of soda	4-6
Acid, picric, best crystals	70-75
tannic, commercial	36-37
Albumen, egg	42-65
blood	21½
Aniline, oil	9½
salt crystals	8½-9½
Alizarine	15½-16½
Bichromate of potash, American	7-8
Bichromate of soda	4-7
Bisulphite of soda	75-1.25
Cutch, bales	5-8
Dextrine, imported potato	4-7
Divi-divi, ton	33-47

FIRES.

Connecticut, Unionville. Slight damage was caused by fire in the carding department of J. Broadbent & Son, manufacturers of yarns, hosiery and cotton batts.

Georgia, Carrollton. The cotton oil mill annex of the Mandeville Mills was damaged by fire recently with loss estimated at about $5,000.

Georgia, Summerville. A fire in the picker room of the Summerville Cotton Mills caused considerable damage to the stock and machinery.

Maryland, Hagerstown. A slight fire occurred in the drying room of the Windsor Knitting Mills and was extinguished by employes of the mill with practicaly no loss. The operation of the plant was not affected.

Massachusetts, Fitchburg. Fire in the stock room of the Shirreffs Worsted Company, which started from spontaneous combustion, was put out by the sprinkler system with loss of about $200.

Massachusetts, Franklin. A fire in the picker room of Clark, Cutler, McDermott Company was extinguished by the automatic sprinklers. The picker in which the fire started was damaged and there was some loss on stock.

The WM. H. LORIMER'S SONS CO.,

MERCERIZERS AND DYERS

Manufacturers of

MERCERIZED YARNS

FOR ALL PURPOSES

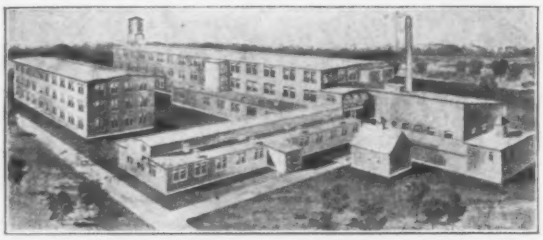
ONTARIO AND LAWRENCE STS., PHILADELPHIA, PA.

Skeins, Cones, Tubes and Warps

Western Representative,
E. G. HARPER,
701 Medinah Bldg., Chicago, Ill.

PETER B. MCMANUS, Pres. and Treas. EDWARD J. MCCAUGHEY, Secy. and Mgr. JOHN MCMANUS, Vice-Pres

HOME BLEACH AND DYE WORKS, Inc.



DYERS, BLEACHERS AND MERCERIZERS OF

COTTON YARNS

IN SKEIN, AND LONG AND SHORT

CHAIN WARPS

FAST COLORS A SPECIALTY

Daily Capacity 20 Tons

FAST COLORS AND BLACK FOR WORSTED TRADE

Office and Works, Pawtucket, R. I.

ESTABLISHED 1881

GLOBE DYE WORKS CO.,

Successors to R. Greenwood & Bault

DYERS BLEACHERS AND MERCERIZERS

OF COTTON WARPS AND SKEIN YARNS

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140 Chestnut St., PHILADELPHIA

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English Calender Roll Papers

For Embossing and Other Calenders.

Chas. A. Johnson & Co.

Sole Agents for America

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DYERS OF SKEIN SILK

FOR ALL TEXTILE PURPOSES

Fast Colors on Silk for Worsted Manufacturers

Pure Dye and Weighted. Bright and Souple.
Dyers of Peerless Black on Artificial Silk.

JOHN F. DAVIDSON

(ORIANNA BLEACH WORKS)

BLEACHER

Of Turkish Towels, Cotton Yarns, Underwear, Cotton Hosiery and Tapes.

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Office, 2557 Orianna Street. Correspondence Solicited.

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MERCERIZERS

Dyers and Bleachers of Skein Yarns. Twines and all Narrow Fabrics. Printers' Knotting Cords a specialty, on tubes or balls (our Fast Black will please you).

T. HOPKINSON, Prop'r and Mgr. G. W. HOPKINSON, Supt.

Office and Works, 259 Forest St., FALL RIVER, MASS.

DYERS of all kinds of YARNS

For Manufacturers of: Men's Wear, Dress Goods, Carpets, Rugs, Upholstery, Hammocks, Shoe Goring, Webbing, Gas and Electric Tubing, Braids and Novelties. Better work, prompter, better service than you get elsewhere.

T. BROPHY'S SONS, Jasper St., above Clearfield St., Established 1845 **PHILADELPHIA, PA.**

MILL NEWS

*New York, Little Falls. Repairs will be made at once on the plant of Rugene Walrath Company, recently damaged by fire, and manufacturing will be resumed next week. The fire originated on the top floor and caused loss of about $3,000 on stock and machinery; fully covered by insurance.

New York, New Hartford. Operations will soon be started in the new plant of the Olympian Knit Goods Company. The new structure is 154 by 50 feet, 4 stories high, and increases the production of ladies' light weight ribbed underwear. A new boiler and engine house has also been constructed. D. L. Davies is treasurer, J. C. Rahn, superintendent. Both of these men buy for the concern.

*New York, New York City. A twenty per cent. increase in the knitting plant of the Ocean Bathing Suit Company is to be made as soon as they get settled in their new quarters at 23rd St. and 6th Ave. Bathing and gymnasium suits are manufactured.

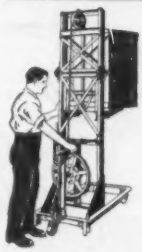
New York, New York City. Henry Schanzer Company, manufacturers of fancy knit goods, including sweater coats. etc., have moved from 594 Broadway to larger quarters at 11 East 26th St.

*New York, Port Jervis. The new $25,000 factory building of William B. Chant & Son is completed and equipment has been installed. The concern is now equipped to knit its own fabric and make it up into silk gloves. Four knitting looms are being operated and it is planned to install two more. It is also planned to equip a dyeing department in the near future.

*New York, Rome. The loss in the recent fire at the Fort Stanwix Knitting Company has not been adjusted as yet but will not be in excess of $10,000 and probably not over $8,000. The damage to the building was very slight and will be repaired at once. The damage to the machinery is not total on any part and the equipment will be put in shape again immediately. They expect to resume operations just as soon as the matter can be adjusted and they are able to get equipment and supplies to replace that which was damaged.

*North Carolina, Burlington. The new 3-story mill of the Whitehead Hosiery Mills, Inc., on which construction was started about the middle of 1913, is completed and the machinery has been moved into new quarters. The mill is 170 by 45 feet. The equipment has been increased to 250 knitting machines, 50 ribbers and 45 loopers, and on 50 machines electric individual motors have been installed. The old quarters will be leased or sold. The capital stock of the company was increased from $25,000 to $100,000 to provide for this enlargement and improvement.

*North Dakota, Fargo. It is expected the capital stock of the Fargo Knitting Mills will be increased February 25 from $25,000 to $100,000. As noted in previous reports it is planned to largely increase the plant. Sweaters, sweater coats and fancy knit goods are manufactured. Morton Page is president, and M. L. Feckler, secretary, treasurer and buyer.



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Tiering Machine

enables one man to do the work of four or five in lifting heavy cases, bales, rolls and barrels. Utilizes all your storage space. Safe, Simple and Practicable. Standard and special machines to operate by hand, electricity or pneumatic power.

Full information upon request.

ECONOMY ENGINEERING COMPANY
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WILLIAM SCHOFIELD CO.
Krams Ave., formerly Church St., Manayunk, Phila., Pa.
Textile Machinery

Makers of Rag, Wool, Hair and Finishing Pickers, Automatic Square and Cone Willows, "Schofield" Intermediate Feed for Cards, Rag and Extract Dusters, Waste Pullers, Worsted and Shoddy Reels, All Kinds of Spike and Slat Aprons.

Special Machinery Built. General Machinery Repairs.
Relagging Picker Cylinders a Specialty.

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A Shuttle

Don't move in the same old rut all your life without ever advancing to better work or better salary. You can secure in your own home, in your spare time, and without leaving your present work, the most powerful force for promotion in the world. Thousands have obtained increased earnings through the I. C. S. Write us a postal today, stating the position you would like to obtain. Advice of experts and booklet free.

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CARD
GRINDERS

When Ordering New Cards
Always Specify "DRONSFIELD" Grinders
The Grinders of World-Wide Fame

Supplied by all the leading
Textile Machinery Importers, Boston, Mass.

Barrett Specification Roofs

A Word to Architects, Engineers and Builders

After you have provided for foundations, steel structures, masonry, flooring, heating, wiring, and the thousand other things that demand your attention when planning for skyscraper, office building, factory or warehouse, you should "top off" the good work with a Barrett Specification Roof.

Your experience has taught you that metal roofings are very costly, both in first cost and for maintenance. They require painting every so often, and easily corrode under the action of smoke and acid fumes. Slate cannot, of course, be laid on a roof that is comparatively flat. A ready roofing is out of place on a first class permanent building because of the danger of damage from leaks and because of the frequent paintings that make it by far the most costly you could use.

To anyone who will investigate the subject, it will be apparent that a Barrett Specification Roof is by far the most economical and satisfactory.

The five layers of Coal Tar Pitch insure its being *really waterproof*, the five plies of tarred felt give it strength and body, and the gravel or slag or tile which forms the wearing surface bears the brunt of the weather.

There are many cases of roofs built along lines of the Barrett Specification which are doing good service at the age of twenty or even thirty years without any expense for maintenance.

Underwriters always accord these roofs the base rate of insurance.

Send to our nearest office for a copy of The Barrett Specification in full. It specifies a roof which will always stand as a proof of your good judgment.

BARRETT MANUFACTURING COMPANY

New York, Chicago, Philadelphia, Boston, St. Louis, Kansas City, Cleveland, Cincinnati, Minneapolis, Pittsburgh, Seattle, Birmingham

THE PATERSON MFG. CO., Limited—Montreal, Toronto, Winnipeg, Vancouver, St. John, N. B., Halifax, N. S., Sydney, N. S.

TRADE B MARK

Warehouse of Louisville Lead & Color Co., Louisville, Ky.
Architects—McDonald & Dodd, Louisville, Ky. Roofers—J. L. Strassel Paint & Roofing Co., Louisville, Ky.

Special Note

We advise incorporating in plans the full wording of The Barrett Specification, in order to avoid any misunderstanding.

If any abbreviated form is desired, however, the following is suggested:

ROOFING—Shall be a Barrett Specification Roof laid as directed in printed Specification, revised August 15, 1911, using the materials specified, and subject to the inspection requirement.

MILL STOCKS

FALL RIVER MILLS

	Bid.	Asked.	Last Sale.
American Linen Co.	...	70	...
Arkwright Mills	...	70	...
Barnard Mfg. Co.	...	...	...
Bourne Mills	...	110	...
Border City Mfg. Co.	...	98	...
Chace Mills	...	102½	...
Charlton Mills	...	...	...
Cornell Mills	...	...	150
Davol Mills	85	...	...
Davis Mills	85	87½	...
Flint Mills	...	96	96
Granite Mills	...	...	...
Hargrave Mills	...	...	...
King Philip Mills	...	...	...
Laurel Lake Mills	115	120	...
Lincoln Mfg. Co.	...	90	...
Luther Mfg. Co.	...	...	...
Merchants' Mfg. Co.	...	88	...
Mechanics' Mills	...	90	...
Narragansett Mills	105	...	...
Osborn Mills	...	103	...
Parker Mills	...	50	...
Pocasset Mfg. Co.	95	100	...
R. Borden Mfg. Co.	117½	...	...
Sagamore Mfg. Co.	170	...	...
Seaconnet Mills	...	63	...
Shove Mills	70	75	...
Stafford Mills	...	80	77½
Stevens Mfg. Co.	...	120	...
Tecumseh Mills	96	103	...
Troy C. & W. Mfg.	...	...	...
Union Cot. Mfg. Co.	...	175	...
Wampanoag Mills	...	85	...
Weetamoe Mills	...	87	...

OTHER NEW ENGLAND MILLS

	Par Value.	Last Sale.
Amoskeag Mfg. Co., com., N. H.	100	60
Amoskeag Mfg. Co., pfd., N. H.	100	99
Androscoggin Mills, Me.	100	135¼
Arlington Mills, Mass.	100	78
Appleton Co., Mass.	100	172
Atlantic Cotton Mills, Mass.	100	40½
Bates Carpet Co., Me.	100	219⅛
Bigelow Carpet Co., Me.	100	150½
Boott Mills	100	98⅛
Boston Duck Co., Mass.	700	1350
Boston Mfg. Co., Mass.	100	105¼
Cabot Mfg. Co., Me.	100	120
Chicopee Mfg. Co., Mass.	100	90
Continental Mills, Me.	100	75
Dwight Mfg. Co., Me.	100	1002½
Edwards Mfg. Co.	100	99
Essex Co., Mass.	100	190
Everett Mills, Mass.	100	110
Fisher Mfg. Co., Mass.	100	125⅛
Franklin Co., Me.	100	205
Great Falls Mfg. Co., N. H.	100	176
Hamilton Woolen Co., Mass.	100	95
Hamilton Mfg. Co., Mass.	100	81¼
Hill Mfg. Co., Me.	100	90¼
Jackson Co., N. H.	1000	985
Lancaster Mills, Mass.	100	85
Lawrence Mfg. Co., Mass.	100	150¼
Lockwood Co., Me.	100	99
Lowell Bleachery, Mass.	100	129
Lowell Hosiery, Mass.	100	40
Lyman Mills, Mass.	100	117½
Massachusetts Cotton Mills, Ga.	100	93¾
Massachusetts Cot. Mills, Mass	100	110¼
Merrimack Mfg. Co., com., Mass.	100	25
Merrimack Mfg. Co., pfd., Mass.	100	85
Middlesex Co., Mass.	100	58½
Monadnock Mills, N. H.	1000	1000
Nashua Mfg. Co., N. H.	500	565
Naumkeag Steam Cot. Co., Mass.	100	175
Newmarket Mfg. Co., N. H.	100	95
Otis Mfg. Co., Mass.	1000	1852½
Pacific Mills, Mass.	100	109
Pepperell Mfg. Co., N. H.	100	292
Plymouth Cordage Co., Mass.	100	222
Salmon Falls Mfg. Co., N. H.	300	150
Shaw Stocking Co., Mass.	100	75
Suncook Mills, N. H.	100	20
Thorndyke Mfg. Co., Mass.	1000	1750
Tremont & Suffolk Mills, Mass.	100	99
Waltham Bleachery & Dye Works, Mass.	100	129
York Mfg. Co., Me.	100	85⅛

NEW BEDFORD MILLS

	Bid.	Asked.
Acushnet Mill	135	...
Beacon Mfg. Co., com.	102½	...
Beacon Mfg. Co., pfd.	...	115
Booth Mfg. Co., com.	25	...
Booth Mfg. Co., pfd.	55	...
Bristol Mfg. Co.	...	70
Butler Mill, com.	...	90
City Mfg. Co.	82½	...
Dartmouth Mfg. Co., com.	125	...
Dartmouth Mfg. Co., pfd.	101	...
Gosnold Mfg. Co., pfd.	87	...
Grinnell Mfg. Co.	167½	172½
Holmes Mfg. Co., com.	100	...
Holmes Mfg. Co., pfd.	100	...
Kilburn	110	120
Manomet	...	113½
Nashawena Mills	59	...
N. B. Cotton Mills Co., com.	100	...
N. B. Cotton Mills Co., pfd.	99	101
Neild Mfg. Co.	...	90
Nonquitt Spinning Co.	90	92
Page Mill	...	76
Pierce Mill	300	...
Pierce Bros., Ltd.	100	...
Potomska Mills	115	...
Quissett Mills, com.	92	...
Quissett Mills, pfd.	98	...
Sharp Mfg. Co., com.	75	90
Sharp Mfg. Co., pfd.	*99	...
Soule Mill	82½	...
Taber Mill	...	100
Wamsutta Mills	120	...
Whitman Mills	119	121

* Ex dividend.

SOUTHERN MILLS

	Bid.	Asked.
Abbeville	85	100
American Spinning Co.	155	...

Unproductive Dollars

Spent for gallons of oil which spatter from shafting, goes astray from oil cans, flings off all textile machinery

May Be Saved

endless staining of goods may be obviated, clean workrooms will result by applying

TRADE MARK REGISTERED IN
NON-FLUID OIL
UNITED STATES PATENT OFFICE

to places now lubricated with fluid oil. Non-Fluid Oil offers many other vital improvements over oil lubrication. They do all that the best fluid oils do except drip and spatter. Ask to be shown at our expense.

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New York & New Jersey Lubricant Co.
165 Broadway, New York

THE PALMER

Adjustable Thread Guide

Cheapest to Buy
Cheapest to Install
Easiest to Adjust
Absolute and Rigid Adjustment
Mail Guide Block for Free Sample
Patented and Manufactured by
THE I. E. PALMER CO.
MIDDLETOWN, CONNECTICUT

American Spinning Co., pfd.	100	...
Arkwright Mills	...	100
Avondale	120	126
Brogon Cotton Mills (new series)	...	81
Brookside	...	112
Cannon	150	160
Cabarrus	152	...
Chadwick-Hoskins	...	80
Chadwick-Hoskins, pfd.	...	101
Chiquola Cotton Mills, pfd.	80	...
Clifton, com.	80	...
Clifton, pfd.	96	100
Clara	100	...
Cliffside	190	...
Clinton	...	120
Columbus Manufacturing Co.	...	85
Darlington	75	83½
Drayton	...	90
Erwin, pfd.	...	105
Easley	...	185
Exposition	...	210
Florence	125	128
Gaffney Manufacturing Co.	59	...
Gibson, com.	...	110
Gluck	...	100
Graniteville, S. C.	140	152
Grendle	...	96
Glenwood	...	150
Highland Park	186	...
Highland Park, pfd.	...	102
Hartsville	175	195
Hartsville, pfd.	...	100
Henrietta Mills	...	141
Inman, com.	...	108
Inman, pfd.	...	100
J. P. King Manufacturing Co.	...	79
Kesler	150	165
Lancaster Cotton Mills	130	...
Lancaster Cotton Mills, pfd.	96	...
Lanet	...	112
Laurens	127	136
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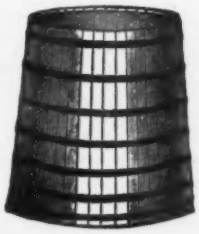

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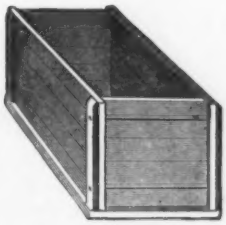

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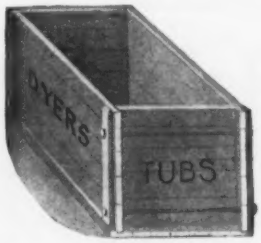

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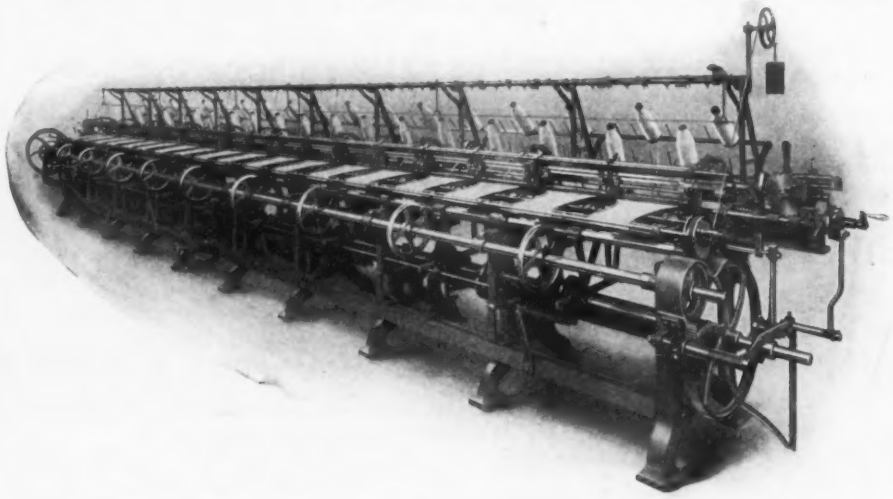

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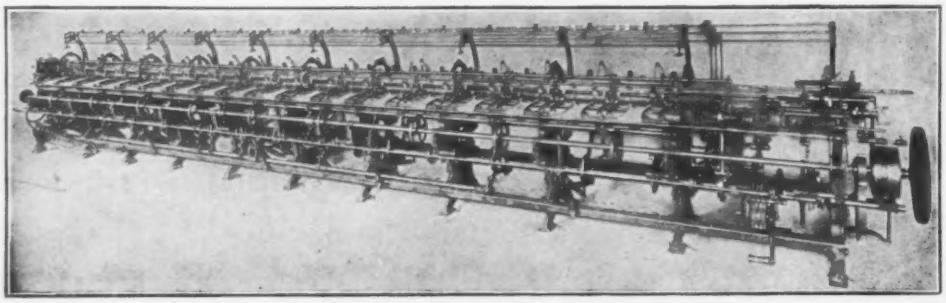

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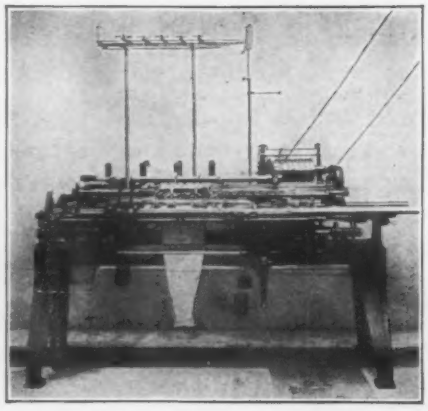

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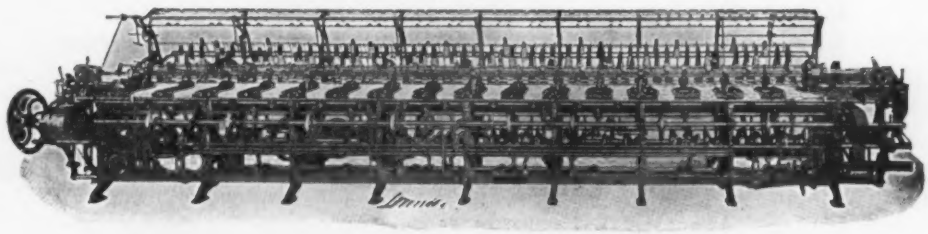

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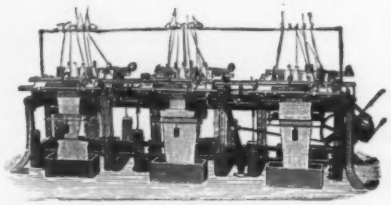

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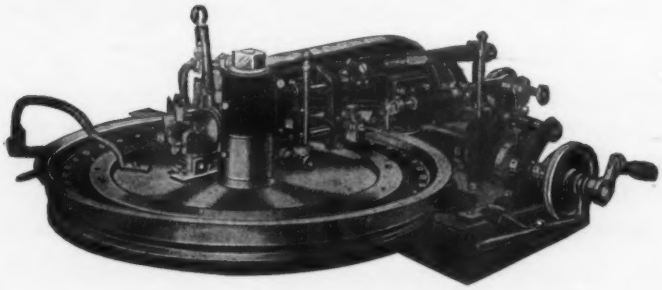

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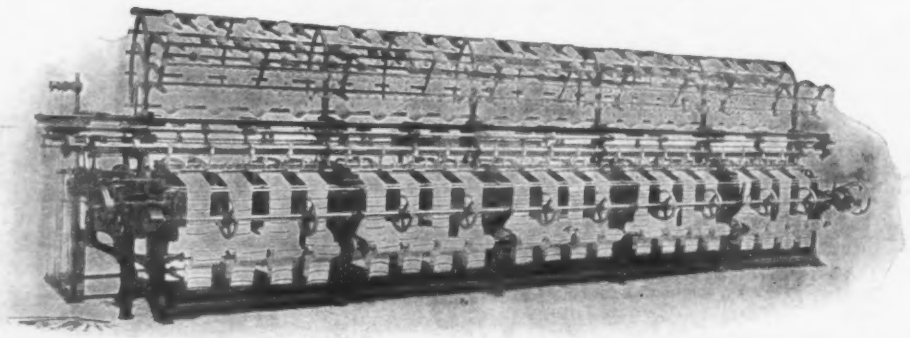

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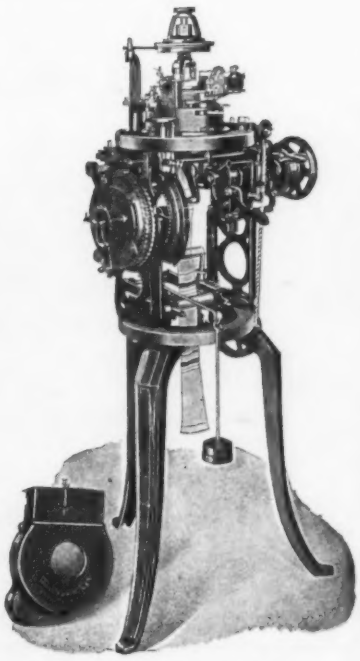

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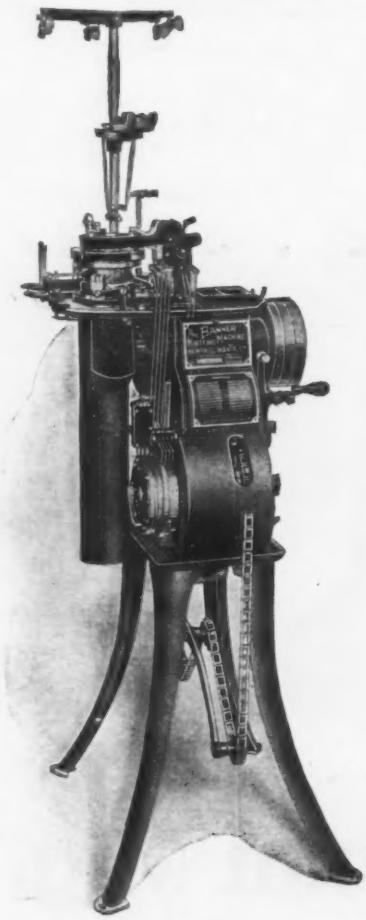

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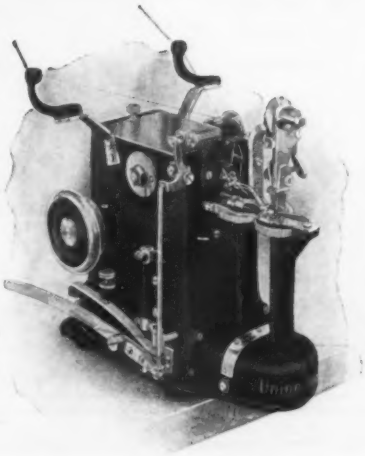
Finest Gauge Silk Fabric
To heaviest cotton hose seamed with equal facility



Improved Adjustable Uncurling Device
insuring perfect seam

Both Feeding Cups Actuated
insuring positive feed upon both selvages, avoiding puckered seam

Quickly Adjustable Stitch Regulator
without interchanging parts.

Union Special Machine Company

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For Textile and Knitting Machine Parts.

Ring and Dial Forgings.

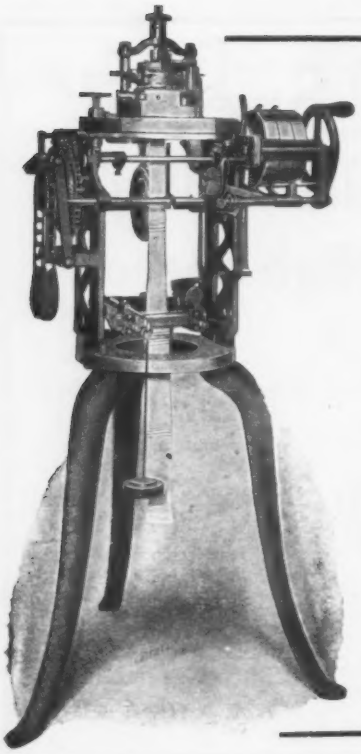
Cold Rolled Spring Steel Strips and Wires,

CUMBERLAND TURNED, GROUND and POLISHED SHAFTING

FIELD & COMPANY, Inc.

116 North 7th Street Philadelphia, Pa.

For steel parts of any textile machine write us—ask for Catalog "D"



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BUILDERS OF

Circular Knitting Machinery

of every kind for every purpose

HOSIERY RIBBERS

with Splicing, Striping, Two-speed, Selvage Welt and French Welt Attachments.

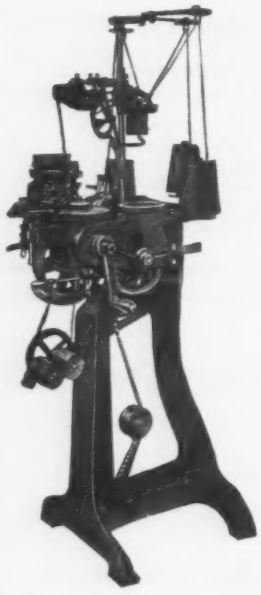
Full Automatic Hosiery Footers

BODY MACHINES, SLEEVERS, etc.

for Underwear, Sweaters, Toques, etc.

NECKTIE MACHINES

for making all kinds of tubular knitted scarfs. Write for catalog, prices and samples.



THE INVINCIBLE

Full Automatic Knitter

"The Knitter That Knits"

All The Time

SEAMLESS HOSIERY
OF
QUALITY

JENCKES KNITTING MACHINE CO.

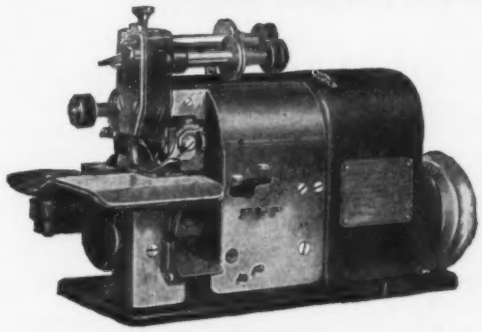
Pawtucket, R. I.

Philadelphia Show Rooms, 1211-1217 Filbert Street

The Merrow

FAST
DURABLE
Light Running

High Speed Overseaming, Overedging and Shell Stitch Machines are



OUR CLASS 60 MACHINES for Trimming and Overseaming in one Operation produce the strongest, best Seams and do it with the greatest economy.

USE STYLE 18 for Horse Blankets.
STYLE 17 B or 22 for Bed Blankets.
STYLE 35 E SHELL, for Necks and Fronts of Rib Goods, produces the most showy, substantial finish.

Send for Catalogue and Samples.

THE MERROW MACHINE CO. HARTFORD, CONN.

Knickerbocker Building, Sixth and Arch Sts., Phila. 467 Broadway, cor. Grand St., N. Y.
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Imported Knitting Machines of Quality

SPECIALTIES

Karl Lieberknecht, Oberlungwitz, Saxony

FULL FASHIONED MACHINES. "System Cotton" for plain and ribbed Hosiery, Underwear, Gloves and Neckties.

RIB MACHINES, high speed, for Rib Tops, Neckties, Hosiery in plain, striped and accordion effects.

WARP MACHINES **(150 COURSES PER MINUTE)** for Tricot Fabrics.

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WARP MACHINES, for Elastic Hat Bands, Mourning Bands, Shawls and Scarfs.

JACQUARD WARP MACHINES, for Veilings, Laces, Shawls, Insertions, etc.

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Sole Representative in U. S. and Canada

The A. N. Ames Automatic Knitting Machine

Has 25 Points of Superiority

In two issues of the Textile World Record preceding this one we have given 10 of the 25 features that demonstrate the economic value of the "Five-In-One" Automatic Knitter.

Here are points 11–15:

11. The Cam Cylinder is the open type and can be removed without disturbing the time of the machine. The butts of the needles are always in sight.

12. The Guard Cams are fastened to the outside of the Cylinder.

13. The Skeleton Ring is indestructible and self-locking—no pins needed to hold it in position.

14. The steel leaves are hardened to a strong temper and can be replaced if they should be broken.

15. The leaves allow us to make our Skeleton Cylinder without reducing the bars at the top, preventing all breakage at this point. Should the bars get broken the Skeleton can be removed without removing the Cam Cylinder.

Of the 25 production-increasing points peculiar to the "Five-In-One" we have now given you 15. In the next issue we shall give you 5 more—but do not wait—send now for full details.

The A. N. Ames Knitting Machine Company

Factory and Main Office, Main St., Franklin, N. H.

THE MOST COMPLETE LINE OF

Sweater Coat Machines

Automatic Racking Machines with or without striping attachments.
Herring Bone Stitch Coat Machines.
Plain Sweater Coat Machines.
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Plain Binding Machines.
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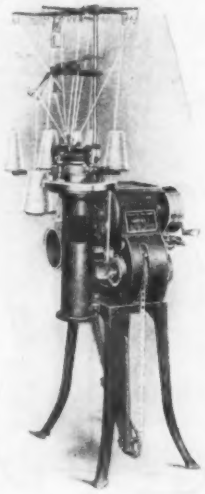
FOR INFORMATION, ADDRESS

STAFFORD & HOLT,

LITTLE FALLS, · NEW YORK, U. S. A.

SCOTT & WILLIAMS, INC.,
New System of Machines for Making Seamless Hosiery

This system of machines comprises various models covering a wide range, from the simplest form of machine for plain hosiery to the most comprehensive which drops each stocking from the machine complete with knitted welt.



Owing to the many patented features these machines will produce more good stockings at less cost than any other machines on the market.

Write for Special Catalog descriptive of this system of machines, also Underwear Machines, Hosiery Ribbers, etc.

SCOTT & WILLIAMS, Inc., 88 Pearl St., BOSTON, MASS.

PHILADELPHIA *ESTABLISHED 1865* UTICA

The Reece Button-Hole Machine

For Cutting and Stitching Straight Double-Barred Buttonholes

This machine is designed for cutting and stitching straight double-barred buttonholes without eyelets, from ⅛ of an inch in length up to 1 inch, in knit goods, shirts, shirtbands, collars, cuffs, etc., also on knit goods of all kinds. It is superior to all other machines, as it is the *only single thread* buttonhole machine on the market doing away with the bobbin or under thread, thereby making a great saving in the use of thread, and *it will produce more than double the quantity of work of any other machine*, thus saving the employment of an extra operator and the space of an extra machine. The quality of the work produced is superior to any other buttonhole, from the fact that the stitch is elastic, which is an important factor in knit goods. This machine is automatic in all its movements, and is an easy machine to handle, and does not require the services of a skilled operator, no cutting or pulling of the thread required, and when the buttonhole comes from the machine, it is finished in every respect and does not require to be trimmed or cut. The length of hole required can be obtained by simply turning a screw.

The machine is made of hardened steel drop forgings, thus reducing the breaking and wearing of parts to a minimum. *Samples of work and terms sent on application.*

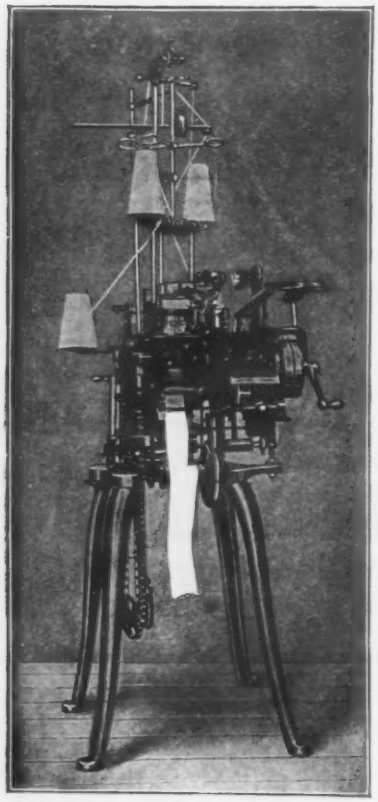
THE REECE BUTTON-HOLE MACHINE CO.

Office and Factory - 500 to 514 Harrison Avenue, Boston, Mass

PAXTON & O'NEILL

Full Automatic

Yarn Changers and Platers



Easy Transfer

Accurate Measuring Device

Produce Finest Fabric Made On Any Latch Needle Machine

FOR LADIES or HALF HOSE

Makes Ladies' Hose with Garter Top.
No Ravel;
Silk, Plated, or Mercerized Leg.
High Splice, Double Sole, with Advanced Toe, Linen or Mercerized Heel and Toe.

PAXTON & O'NEILL

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HOW MUCH OF THIS

$10,000,000.00

DO YOU WANT?

About $10,000,000.00 worth of full fashioned stockings are made in America each year.

No matter what proportion of these millions you are now getting, you can get more of it if you will make full fashioned hosiery on our machines.

Because, the stockings you make will fit perfectly and bring you repeat orders.

The leading hosiery manufacturers are installing these machines.

If you are thinking of making full fashioned goods take up the question with us—as our success depends upon yours, we will prove to you that we can help you before you spend a cent.

TEXTILE MACHINE WORKS

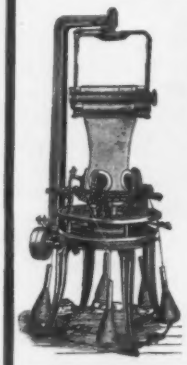
READING, PA.

THE MAKERS OF AMERICAN FULL FASHIONED HOSIERY MACHINES

CHARLES COOPER,

BENNINGTON, VERMONT,

MANUFACTURER OF



Knitting Machinery

Flat and Circular Rib, both Spring and Latch Needle, Plain Circular Machines, Lead or Trick Cylinder, **Spring Needle Cylinder Rib-Top Machines** for making Cuffs, Drawer Bottoms and Shirt Borders.

Spring and Latch Knitting Needles, Burr Wheels, Burr Blades, Sinkers, Jacks, etc.

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NYE & TREDICK CO.

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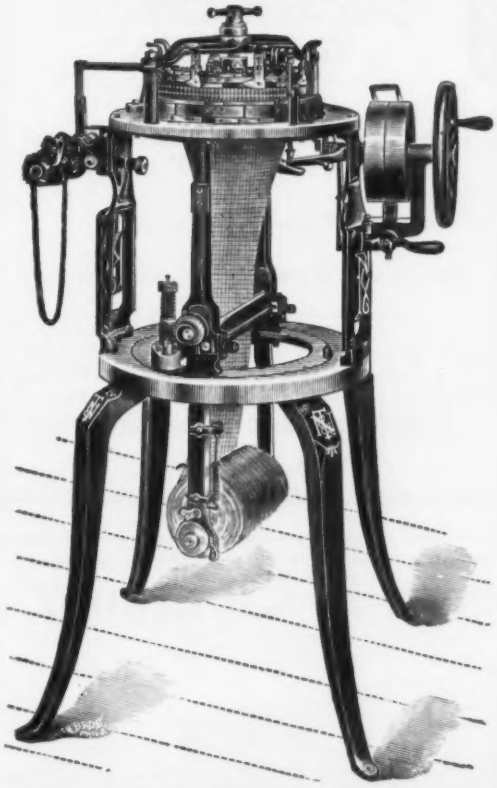


Circular Rib Knitting MACHINERY

For making Ribbed Underwear, Combination Suits, Sweaters, Cuffs, Shirt Borders, Hosiery, etc. Correct Construction, Excellence and Durability.

LATEST IMPROVEMENTS

Quality of Fabrics and Production
UNEXCELLED

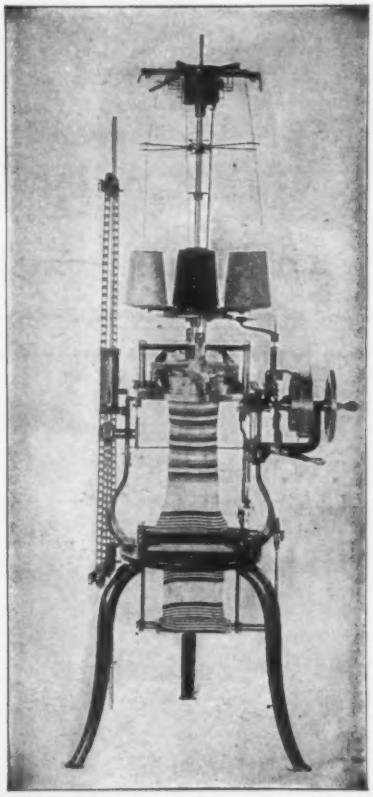
NYE & TREDICK CO.

1914

CRANE MFG. CO.

Established 1870 — LAKEPORT, N. H. — Incorporated 1890

Spring and Latch Needle Machines
for Both Rib and Plain Work
Economically Producing
A GREAT VARIETY OF FABRICS



Improved Automatic 3-Colored Plain Striper.

SOME CRANE FEATURES

Improved Spring Needle Underwear Machine for Shirts, Drawers, Jersey Cloth, Astrachan and Stockinet.

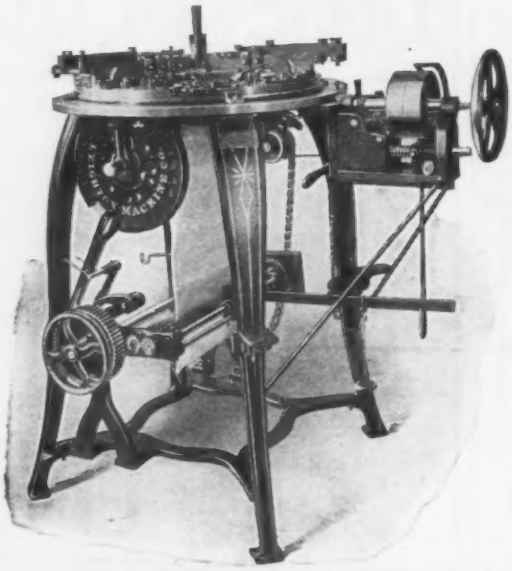
Frames of any guage and diameter required can be furnished from 2¼ to 36".

Patent removable hardened Wing Burr Wheels.

Patent Thread Stop Motion can be fitted to 20" and 40" frames and are specially adapted for making fine Jersey Cloth and Stockinet.

Our flat machine is adapted for knitting collarettes.

Leighton Improved Circular Knitting Machines



FOR SWEATER COATS

Give Good Production and Excellent Quality

IN

Automatic Racked Fancy

OR

Plain Stitches

On Wool, Worsted or Cotton Plated

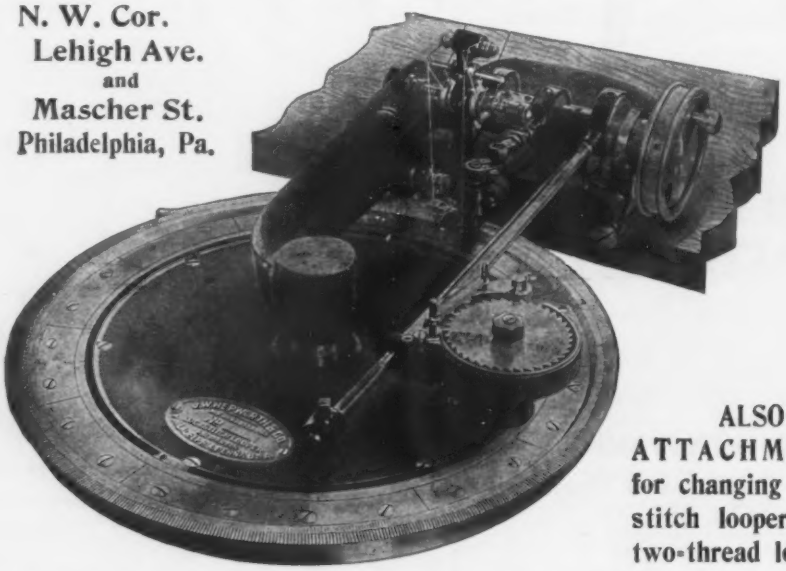
We also Build Jersey or Ribbed Underwear Machines, 4 to 16 Feeds

Leighton Machine Company

Manchester, N. H.

John W. Hepworth & Company

N. W. Cor.
Lehigh Ave.
and
Mascher St.
Philadelphia, Pa.



Makers of Two Thread Elastic Lock Stitch Loopers

ALSO
ATTACHMENTS
for changing our single stitch loopers into the two-thread loopers.

JAMES TAYLOR, 216 N. Front St. Philadelphia, Pa.

ALL KINDS OF NEW AND SECOND HAND **KNITTING MACHINERY**

A RARE OPPORTUNITY TO BUY

10 Lamb & Grosser Sweater Machines.
3 Large Crawford Hollow Plate Presses.
1 Allen 40 Spindle Cop Winder.
54 Standard "B" Knitters for sizes.
24 Mayo "Acme" " " "
2 Complete Hosiery Plants.
1 Boomer & Boshert Cold Press.
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4 Hosiery Dryers.
14 Cornely Hosiery Embroidery Machines.
500 Dozen Hosiery Shaping Boards.
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1 Complete Plant for Mfg. Hosiery
1 ½ h. p. Electric Motor.
1 Singer Nat. Button-hole Machine.
500 Payne Winder Bobbins.
100 ¾ Aut. Knitters, various makes and sizes.
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4 Climax High Speed Motions for Ribbers.
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Lot Electric Stop Motions for flat Machines.
1 Merrow No. 60.
1 Crawford 17 Plate Press.
1 Blickensderfer Typewriter
5 Band Folding and Cutting Machines.
1 Curtis & Marble Napper, 66".
30 Sweater Coat Machines various styles.
8 Jones Fleecers, 24x36".
1 Underwear Knitting Plant.
2 Singeing Machines.
1 Hosiery Printing Press.
4 Hosiery Lever Presses.
42 Union Spec. Sewing Machines, various styles
50 Loopers and Seamers, all makes.
60 Ribbed Underwear Machines.
100 Hosiery Ribbers and Sleevers.

WRITE FOR COMPLETE LIST. APPRAISEMENTS A SPECIALTY

We are always in the market to buy good Second-Hand Knitting and Finishing Machinery.

The New Boss Seamless Knitter

Do you want the biggest production with the least menders, for the least money? If so, write to the Boss Knitting Machine Works for their circular with full directions. There is no cylinder to be handled. We use only one cylinder and transfer device for half hose or ladies' hose. This machine beats them all. Has no equal for simplicity and durability. Makes 300 revolutions per minute. Built in sizes from 2¼ to 5½; from 40 to 224 needles. Automatic in heel and toe. It is the strongest built knitter on earth.

Send for prices and particulars.

THE BOSS KNITTING MACHINE WORKS,
Cor. Elm and Reed Sts., Reading, Pa.

BUTTONS

PUT ON TO STAY ON

No bobbins to wind. Will sew all buttons with any thread.
No threads to trim. Saves 90% of the needle breakage.

Elastic Stitch Button Sewing Machine

saves money for manufacturers, and helps them increase the demand for their products.

Without increasing the expense to the manufacturer, the Elastic Stitch Button Sewing Machine sews buttons on garments in such a way as to allow for thread shrinkage and to stand the wear and tear of the laundry, as well as giving to the buttons the same uniform finish that the tailor would give, and avoiding, as the tailor does, the drawn down, tight effect that is unavoidable when a two thread machine is used.

Send for proof and "List-of-Users" booklet.

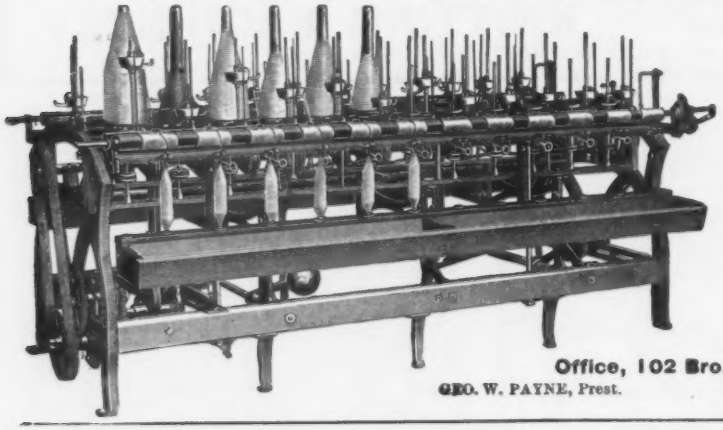
Union Button Sewing Co., Dept.,
Frederick Osann Company

394 Atlantic Ave., - Boston, Mass.
245 Seventh Ave., - New York City

Agents Everywhere

OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers, Wind for Cop, Skein or Bobbin,



Improved

Upright Spoolers

To Spool from Cop, Skein or Bobbin

Doubling Spoolers for doubling 2, 3, or more ends into one.

Upright Quillers, Quill from Cop, Skein or Bobbin.

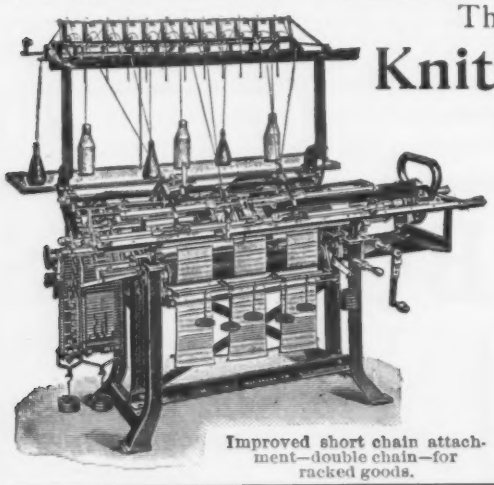
Ring Dresser, Spooler and Reel Spindles, Cop Skewers, Warp, Spool, Spooler, Guides, Bolsters and Stops Made and Repaired at Short Notice.

GEO. W. PAYNE CO.,

(Est. 1865. Inc. 1903)

Office, 102 Broad Street, Pawtucket, R. I.

GEO. W. PAYNE, Prest. CLINTON F. PAYNE, Sec'y and Treas.



Improved short chain attachment—double chain—for racked goods.

That is the Brand of the

Knitting Machines

worldwide known to be **The Best**

160,000 Knitting Machines in use all over the Universe

CLAES & FLENTJE

Muhlhausen Thr., Germany

(Largest Knitting Machine Factory in the World)

The cut represents one of our full automatic machines with double chain, short chain attachment, doing away with the long chain and lots of blocks.

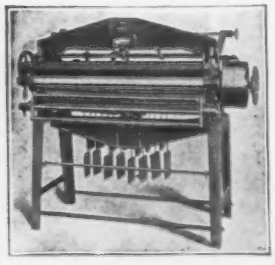
Machines for all kinds of plain and fancy knit goods by hand and full automatic by power.

Our knitting machines are far superior to any other in simplicity and construction. They give a higher production than any other on the market.

For full particulars, needles and supplies for all kinds of knitting machines, write to

Ainslie Knitting Machine Co.

281 Ainslie Street Brooklyn, N. Y.



The "1912" Cloth Cutting Folding and Winding Machine.

This machine will cut down operating expenses. It does in one operation the work which is now being done in two. It cuts the cloth, folds the edges and rolls them up in one operation, and at all times gets one more strip out of a bolt of cloth than is possible with the old method of cutting. At the same time it measures the bolt of cloth to show the manufacturer whether or not he is getting the number of yards he is paying for. With the high price of cotton to-day every knit goods manufacturer ought to look into this to see if he is getting the maximum efficiency at the least expense. You will find when you come to figure it up in the course of a year that the labor it saves is a big item.

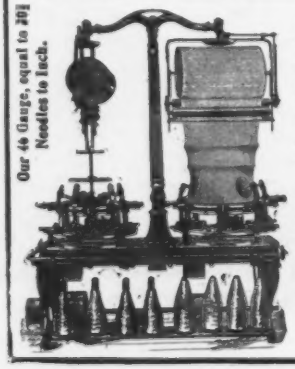
Also have other labor-saving devices, and upon application you can get prices and full information on same.

Joseph A. Firsching, 22-28 John Street Utica, N. Y., U. S. A.

We are the Oldest Manufacturers

WITH

45 YEARS PRACTICAL EXPERIENCE



Our 46 Gauge, equal to 20 Needles to Inch.

in building Spring Needle Knitting Machines. Have succeeded knitting the finest and the coarsest work ever made on Spring Needle Knitting Machines in this country, any work from 3 to 46 gauge. Our Machine is of the highest class.

Robt. W. Gormly and Company,

Troy, N. Y.

"Acme" Hosiery and Textile Binder, No. 30

A Simple, Inexpensive Machine, for **Attaching Tickets** on **Hosiery, Underwear,** etc.

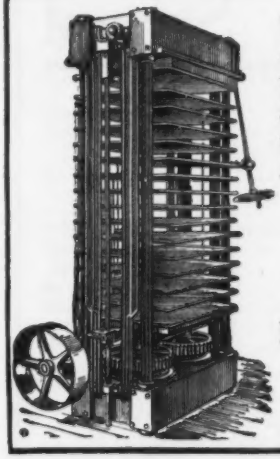
It uses a pointed staple, **CANNOT INJURE THE FINEST SILK HOSE**; can be set aside when not in use.

Is operated by foot power and has a **patented WORK-HOLDING DEVICE carrying one dozen or more pairs of hose, keeping them in perfect alignment and presenting the tops in position to receive the tickets AT LEAST TWENTY-FIVE PER CENT QUICKER** than by any other method now in use.

For particulars and the address of the nearest agency

Apply to the Manufacturers

THE ACME STAPLE COMPANY
CAMDEN, N. J.



Reliance Hot Plate Press

For Hosiery and Underwear Trade

For price and particulars address

Reliance Machine Works
Hedge and Plum Sts.
Frankford, Phila., Pa.

STANDARD MACHINES FOR HOSIERY MAKING

The STANDARD F, with attachments, can make any and all of these fabrics:

- **Plain Goods**
- **Plaited Work**
- **Three Color Stripes**
- **Tipped Heel and Toe**
- **White Foot**
- **Changed Heel and Toe**
- **Garter Top**
- **Loopers Slack Course**

Most Stockings — Best Fabrics Longest Life

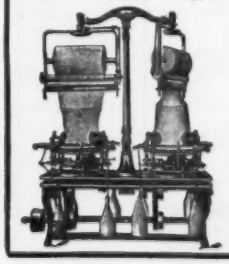
Standard Machine Company
OFFICE AND SHOW ROOMS
330-348 North 12th Street
Philadelphia, Pa.

We Are the Oldest Manufacturers
IN THE WESTERN HEMISPHERE
Of Circular Spring Needle Loop-Wheel Knitting Machinery.

TOMPKINS BROS. CO., Troy, N.Y.

We submit the following extract from the sworn testimony of R. W. Gormly, in U. S. Circuit Court, Northern District of New York, in equity, No. 6764:

Cross Question 123. How long have you been a manufacturer of knitting machines? Answer I started in this business about the middle of May, 1900.



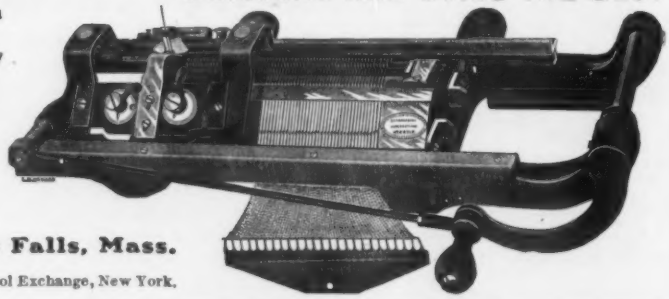
Tompkins Knitter

This design was adopted in 1875.
BUSINESS ESTABLISHED in 1846, before ROBERT W. GORMLEY Was born, according to his testimony in the case above cited.

THE LAMB

LEADER OF KNITTERS

ORIGINAL AND STILL THE BEST



Most widely used; being operated in every civilized country.

Our Collarette Knitter Knits almost any conceivable style and with selvage ends.

Circular Rib Top and Seaming Machines.

Send for Prices and Catalog.

LAMB
Knitting Machine
COMPANY,

P. O. Box 5888, **Chicopee Falls, Mass.**

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L. D. Sanborn, Room 513, Wool Exchange, New York.

A. W. ALLEN

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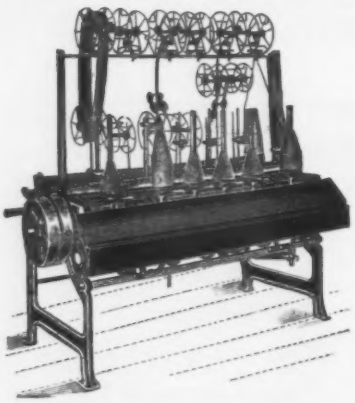

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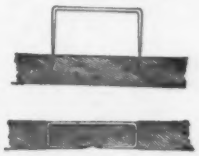

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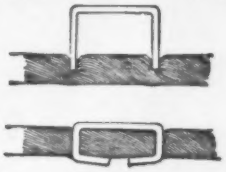

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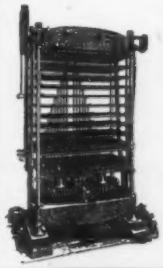

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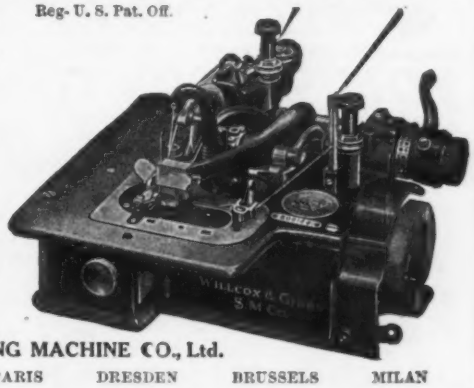
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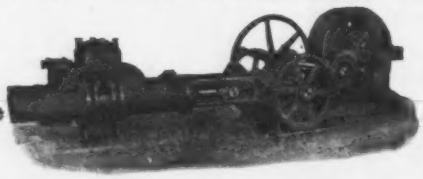

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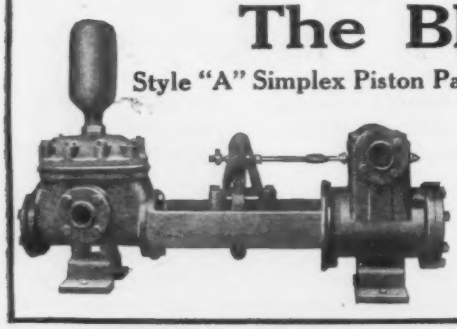

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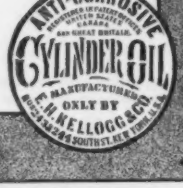

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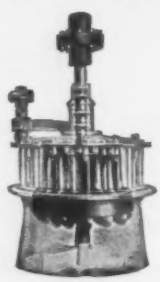

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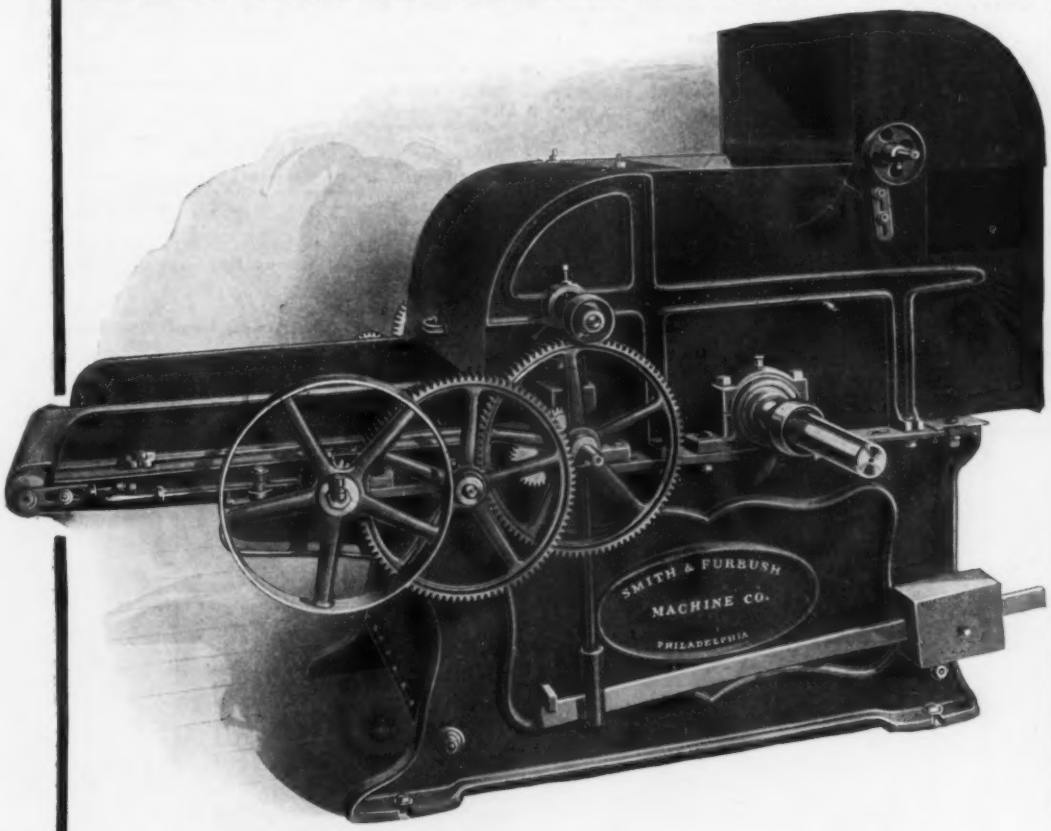

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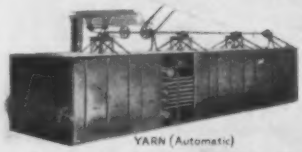
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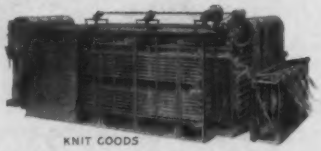
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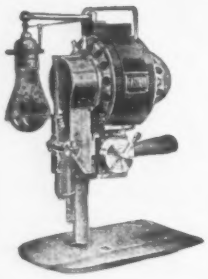

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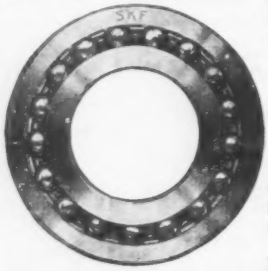

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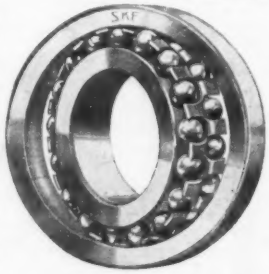

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